

Letters to the editor

Standards of social science research

Sir, - Your leader "The Hague Offensive" (THES, May 11) must set some sort of record in the creation of mountains out of molehills.

First, the £2m which my council will use to fund research under the broad theme of "Change in Contemporary Britain" is clearly a large sum. But it is only 5 per cent of the council's research funding over the period. If we are to be criticized, it should be for timidity not boldness.

Second, the primary aim of research under our theme is neither to solve problems nor give good policy advice. It is to increase general understanding of the effects of the discontinuous changes - economic, social, geographical and technical - currently affecting Britain. It must help us all, including theoretical social scientists, if we have a fuller understanding of what is happening to British society.

The most important need is to maintain, and indeed raise, research standards in the social sciences. Many of us find the best stimulus for high quality research in collaboration in the design and execution of research projects. The response so far to the council's proposal shows that many social scientists believe that we shall find this stimulus in studying developments in contemporary Britain and not

in the fantasy world which your leader writers appear to inhabit. Yours faithfully, DOUGLAS HAGUE Chairman Economic and Social Research Council.

Sir, - Your editorial on Sir Douglas Hague's suggestion of a theme of "change" in the forward look of the Economic and Social Research Council shows a good deal of intellectual legerdemain and journalistic sensationalism in managing to move from "change" through Scargill and "Thatcherism" to a view of the ESRC proposals as being a straightjacket.

Two points about the proposal have to be made. The theme of the ESRC proposals does include the understanding of change as well as how one might adapt to and manage change. It therefore offers ample scope for the analysis, interpretation and conceptualization of the processes underlying change in society. Second, the overall theme has not been snatched (Snatchlike, you would no doubt say) from thin air, but has clearly emerged from the priorities of the multidisciplinary committees, which in their turn reflect the flow of ideas within communities of researchers.



Sir Douglas Hague: helpful touch

The ESRC committee which I chair, for example, has as one of its research priorities the understanding of the changing urban and regional system. It would be inconceivable that the questions this poses could be tackled without considering either the impact of the open economy and the influence of events outside Britain or the ways in which local, regional, national and international change interact and influence each other. What happens at a

local level both reflects and in turn affects change at larger scales.

There is rich ground here both for conceptual and theoretical exploration of the relation between the macro and micro as well as for more empirical work within geographical localities which make up the complex mosaic of change within the national economy and society.

Your comparison of the influence of the social scientist and that of the biochemist or nuclear physicist (the relevance of whose being at CERN might escape your less discerning reader) is conveniently to ignore both the fact that a customer-contractor principle already operates for the natural sciences and that the budget of ESRC is well over ten times that of ESRC.

Sir Douglas's suggestion will prove a helpful touch on the filler for the social sciences, both recognizing and further promoting research questions that have begun to be addressed with growing urgency. That it will also have the effect of increasing the likelihood of more collaborative work across the fields represented by the standing committees can only be further to the good of the social sciences in general. Yours faithfully, B. T. ROBSON University of Manchester.

Strangling the WEA

Sir, - Mr Peter Brooke's speech to the Adult Literary and Basic Skills Unit conference as reported by you last week cannot be allowed to pass without comment, especially since he chose to make what was a misleading statement about the Workers Educational Association and the University Grants Committee.

The minister may not feel that he is "strangling the adult education book we fund" but he has in fact hit on a very apt description of what it feels like to be on the receiving end of Department of Education and Science and government policies.

Not only is the WEA subject to direct cuts over the next three years, the DES, it is also sharing with the university extra mural department the effects of an even greater cut in a programme of joint work, historically such an important part of adult education provision. WEA Districts are also suffering increasingly the effect of government policy towards local authority expenditure as local authorities are forced to restrict and curtail monies for adult education, bringing under threat in many places the long established partnership between the statutory and the voluntary sector.

Mr Brooke's view of our difficulties are to be resolved demonstrates a depressing lack of understanding of the purposes and operations of the WEA. His repeated opinion that adult classes will thrive if they are not increasingly expensive is a strange one in any circumstances. For the WEA constantly striving to reach those who have little or no experience of adult education, such an idea flies in the face of all reason.

He now states that this is to be accomplished by "organizers" convincing more people that adult education is good value for money. They may indeed be a few professional entrepreneurs in the adult education business, but for the WEA the organizers are the active members of our 30 branches working year after year in their own communities to build up a programme of work reflecting the needs of these communities. In this they are supported by only a tiny full time staff. The WEA branch is not a profligate spender, careless of public money is used. Branches operate on a shoestring and for many years they have been used to the careful husbanding of very scarce resources.

We hope that the minister will think again about the dangers of destroying the confidence of voluntary workers whose efforts are so crucial to the maintenance of liberal adult education; perhaps he might like to consider how good an investment additional resources might be.

ROBERT LOCHRIE, General Secretary, Workers Educational Association.

Bad timing

Sir, - The committee of the Standing Conference of Principals and Directors of Colleges and Institutes of Higher Education has asked me to convey to you its grave concern at the inadequate time afforded to these colleges whose future viability is under review by the National Advisory Body.

Those institutions approached by the NAB and discussed in your columns (THES, May 11) have to respond to proposals concerning their existence within a month when not even the activity of the academic year is approaching a climax but also in the midst of responding to the NAB's future targets, affording HMI facilities to carry out searching inspection of initial teacher education and diversified courses and managing the growing problems arising from progressively

V-Cs meet Joseph on tenure

by Ngaio Crequer

Vice chancellors meet Sir Keith Joseph, the Secretary of State for Education and Science, today and will make their first response to his proposals to weaken tenure.

The full membership of the Committee of Vice Chancellors and Principals will meet Sir Keith, at their invitation, to discuss a wide range of issues affecting the universities.

The committee will have discussed the tenure initiative for the first time at their own meeting earlier today, although their general purposes committee is to undertake a study of the problem, to report back in three months.

Other items on the agenda include university funding and alternative methods of finance, academic assessment and quality, the University

Grants Committee "great debate" and the Department of Education and Science revised student number projections.

These are not now expected to be published by the DES until about the middle of June. The revised report will be more detailed than earlier projections, and there will be a full explanation of the underlying assumptions made.

Mr Peter Brooke, under secretary for higher education, told the Association of University Teachers council last week that although he acknowledged that Government policy on matters such as student grants could influence demand, "given the system as it is, it is unlikely that a 30 per cent plus fall in the 18-year-old population will not lead to a significant drop in young qualified demand."

The DES was refining its work in the

areas of the effect of social mobility, increases in participation by women, and demand from mature students.

He said that as higher education demand was in the first place (though not exclusively) demand for a university place, any fall in the absolute number of people wishing to enter higher education would not be reflected directly in the universities.

"The longer term issue then is how far universities should lower their overall entry standards to fill their places, taking in people possibly better suited to the different style of higher education offered in the public sector."

The question of the balance of provision between the sectors would be a key issue in the plans for higher education which the Government would be bringing forward at the end of the year.

Continue to support units, says review

by Paul Flather

New reviews on the academic standing of the Economic and Social Research Council's four specialist research units have recommended continued support.

A special sub-committee has studied the reports, which single out certain areas for expansion and for contraction. A further meeting takes place next month and a final report is expected to go to a full council meeting in July.

The council wants to reduce its commitment to the four units set up in the early 1970s, following a recommendation two years ago in the Rothchild review of the ESRC to cut down on central administration costs.

More than 50 staff in the four units based at Oxford, Cambridge, Aston and Warwick universities are watching anxiously as discussion over their future grinds on.

Most interest centres on the ethnic relations unit, which has 20 staff and is based at Aston. It looks increasingly likely to move to Warwick to join the industrial relations unit, which seems to be very secure.

The council wants all four units to continue, but to remove their air of permanency and turn them into Designated Research Centres funded for eight years, with a review after four years, ideally with staff on the university's own payroll.

This will also help iron out anomalies in the pay structure of the units' staff, who are hybrids caught between civil service and university pay structures. As such, they have to sign the Official Secrets Act. They do benefit from a higher non-contributory pension scheme, estimated to be worth an extra £350 a year, but do not have tenure and are subject to five-year contracts.

The units are also facing three years of budget cuts, varying from 14 to 18 per cent. At the socio-legal research centre at Oxford four staff have not had their contracts renewed in the past six months, and overall staff numbers have dropped from 22 to 14 in the past five years.

Both Oxford University and Cambridge, which houses the history of population and social structure group with nine staff have had high level talks with council officers without reaching any conclusions.

For next year the ESRC is committed to spending £142,000 on the Cambridge group, £342,000 on the Oxford socio-legal centre, £320,000 on the Aston race unit and £224,000 on the Warwick industrial relations unit. It will also spend £148,000 on the applied psychology research unit at Sheffield University jointly funded with the Medical Research Council and unaffected by the current talks.

MPs attempt to save ECA

Two new bids were being made this week to rescue the Educational Centres Association, which has been threatened with the loss of its entire £18,000 annual grant from the Department of Education and Science.

The association aims to represent the combined views of students, tutors and administrators in adult education and encourages students to take an active participatory role in course provision.

An appeal on behalf of the ECA was launched this week in Parliament by Mr Robin Squire MP (Conservative) while 24 others have signed a motion by Mr Ron Davies MP (Labour) deploring the DES decision to reduce grant aid over the next three years and to cease funding in 1988.

In an adjournment debate on the fate of the ECA, Mr Squire pointed out that £18,000 a year was a minimal amount for the DES to pay for the

valuable services provided by the association.

Since the DES began funding the association 50 adult education centres had joined it. Though the association represented only one quarter of adult education institutions in the country, amounting to approximately 400,000 students, those centres were most active, most progressive and innovative.

Mr Davies' motion expressed concern about the withdrawal of grant aid and called for recognition that an organization involving 400,000 students in adult education was of exceptional good value. The motion deplored the likely consequences of removing the grant.

In announcing the withdrawal of grant aid in March, Mr Peter Brooke, under-secretary for higher education, stated that the ECA's objectives were "insufficiently central" to the DES to merit continued funding.

Particle physics inquiry gets muted reaction abroad

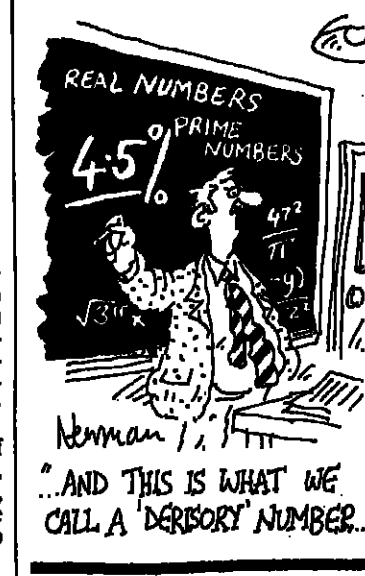
British physicists can take little comfort from foreign reaction to the recent announcement of a UK inquiry into support for high-energy particle physics. Although the inquiry will consider Britain's future participation in the CERN particle physics centre, the CERN in Geneva, international reaction has so far been muted.

Professor John Kingman, chairman of the Science and Engineering Research Council, said that the inquiry should concentrate on making the best possible use of the UK's resources and not rely on the diplomatic and political implications of membership.

It is recognized that Britain's decision on CERN will affect other international collaborations, but foreign scientists in the hope that this will provide enough extra money to exploit the machine's full potential.

But despite persistent rumours among British physicists that the Germans had broken off talks when the CERN inquiry began, SERC officials confirm that discussions are going ahead and should be finished by the end of the year.

However, a possible complication arises from the Germans' likely wish to secure reciprocal British participation in a new German neutron source, known as the SNQ, which should be under construction by next year at Jülich. The Germans are sure to question the value of any forward commitment from the UK if a decision is made to pull out of CERN.



Life-size disembodied Ginger Rogers and Fred Astaire waltz their way through an exhibition of work by foundation art and design students at Leicester Polytechnic. Work ranges from this beaten metal evocation by Kathy Boorman to graphics, painting and furniture.

'New dialogue' begins

The Open University and the National Advisory Body have begun a new dialogue to reduce conflict and increase cooperation between the two sectors.

In a letter to Sir Keith, CDP chairman Dr Harry Law says that the freedom of choice of institution could be inhibited and that the polytechnics may be especially badly hit.

The vice-chancellor of Lancaster University, Professor Philip Reynolds, has called the 21 MPs on the university court to use their influence to win a modification of the scheme perhaps to allow reimbursement to continue when actual costs are £50 a year above the levels contained in the scheme.

Lancaster is among institutions particularly affected, with many of its students living in Morecombe and facing extra costs of between £165 and £175 a year. Reynolds is particularly worried that this will deter applicants and says in his letter: "It would be monstrous if the successful efforts we have made over the past three years to increase our attractiveness to students of good quality with all the implications that has for selective funding were to be jeopardized by a decision on a peripheral matter."

Among the issues discussed at the talks was the extent to which the OU and the public sector of higher education might be competing for students undertaking part-time degrees. It was concluded that the market could apply support both sectors, and the OU degree differed markedly from that on offer from the public sector institutions.

The talks also centred around the level of fees for part-time degrees, with the OU expressing concern that rising fees could substantially reduce the market.

There was also some discussion about the OU's expertise in distance learning techniques, and the role of both sectors in continuing education. Dr Horlock is a member of the NAB working party on continuing education.

CNAA probe defended

A defence of the Government decision to set up an inquiry into validation in the public sector came this week from Mr Peter Brooke, under secretary for higher education.

In a speech read to the annual council of the Association of Polytechnic Teachers on his behalf because of competing Parliamentary duties, Mr Brooke said the aim of the inquiry was not to investigate but to incipitate.

"Our wish... is to focus upon the various processes of validation and how they may be made more effective regardless of who carries them out." Stringent and detailed quality control of courses had been clearly needed during the expansion of the polytechnics, but there was now a common framework of broad assumptions about what a degree was and how it should be taught.

"It is appropriate at this time to have a close and impartial look at current procedures to see if there is scope for improving them and making them better able to meet future demands."

Ball denies NAB bias

Mr Christopher Ball, chairman of the National Advisory Body board, has denied that small colleges have no future, or that the NAB has any doctrinaire view about concentration.

In a thinly veiled reference to the 12 diversified teacher training colleges whose future is being reviewed by the NAB, Mr Ball - who was delivering the Winton lecture at King Alfred's College, Winchester - said that every institution would be considered and valued on its merits.

"The nation will not, I hope, lightly discard any institution of higher education when it considers the time, care and the resources needed to create it effectively in the first place. The review is by no means completed yet, and it is a rash punter who calculates his pool winnings or losses on the basis of half time scores."

Discussing wider access to further education, Mr Ball condemned support by the National Union of Student's president elect for action against a student at the Polytechnic of North London because of his political views. "I hope he will think again. Our society's students and teachers alike, have more to fear from the sacrifice of educational freedoms in a polytechnic than from the wholly detestable doctrines of the National Front."

Defending polytechnics against recent attacks on the standard and quality of their courses, Mr Ball said that the system of inspection by Her Majesty's Inspectorate and validation by the appropriate bodies provided a guarantee of threshold quality a good deal more secure than was available to the universities.

Discussing the current system of education, he added that one of the most serious weaknesses of contemporary educational sorting was academic bias. "In brief, our sorting systems of highest prestige are biased towards disciplinary skills and away from vocational skills."

Loss of contact Excellence

Sir, - Listening to Mr Peter Brooke at the AUT Council meeting in Manchester, as he spoke of "room for improvement" in the universities and of the government's concern for "universities' efficiency", I realized how serious a problem communication can be. Academics, I imagine, would take "efficiency" to include the notion of the effective pursuit of knowledge; "improvement" would be looked for in the same direction.

As far as I could gather, this was not at all what the minister had in mind in his assessment of student numbers and an adequate return for taxpayers' money. In which direction, I wonder, should the quantum leap be made, to allow a possible dialogue, let alone agreement.

Yours faithfully, Dr E. J. E. BIRMAN, Royal Holloway College, University of London.

Liberal voice

Sir, - I am writing to point out the serious imbalance of political parties in your column "Party Line": specifically, the under-representation of the Liberal Party. Even in terms of MPs rather than votes received, the current proportion of columns in this series written by Liberals is unfair and unrepresentative. (And until the Liberals and the SDP are one party - may that day come soon - it will not do to assume the latter necessarily reflects the views of the former.)

Yours sincerely, PATRICK CURRY, 1A Rodan Street, London, W.14.

Labour point

Sir, - I have just read the conference background leaflet giving details of the recent conference organized by the Business Education Teachers Association (UK) on "European Business Education Cooperation in a Cold Climate".

In the leaflet the organizers say that an important characteristic of their annual conferences is that contributions should "come from all interested groups (academics, industrialists, graduates, students and government agencies)".

All interested groups? I am sure it is not without significance that they fail to mention representatives from organized labour. Are we to assume, tacitly, that that which is taught in the name of "business" is irrelevant to the interests of organized labour?

Yours faithfully, COLIN LOVE, Arnold Lodge, Bottesford, Nottingham.

Letters for publication should arrive by Tuesday morning. They should be as short as possible and written on one side of the paper. The editor reserves the right to cut or amend them if necessary.

Irksome quality

Sir, - "What irks the physicists so?" asks Brian Bloomfield in his piece on particle physics (THES, May 4). I am not able to answer his question - in fact I get the impression that it is the physicists who irk the sociologists rather than the other way round - but I can tell him what irks me is the quality of his argument. Two examples.

"Is it all a matter of belief rather than of science, or does not science rest on conventional systems of accepted beliefs anyway?" The first question assumes that science and belief are two different things; the second asserts that they are the same. Which way does Brian Bloomfield want it? Or does he think that "belief" in italics means "religious tenet" (as the context would rather suggest), while "belief" without italics equals "theory"? It would help to know.

*Witness the classical physicists who

thought that the universe was rather like a giant clockwork... Relativity and quantum mechanics changed all that so why should we now be in any qualitative better position? Can we really believe that the fundamental is that much nearer our grasp than it was 100 years ago? Again Brian Bloomfield confuses theological and scientific terms in a way that sheds absolutely no light on either. He is also mistaken in thinking that "qualitatively better" means something different from "better". He obligingly provides the answer to his own question - we should now be in a better position because relativity and quantum mechanics have "changed all that".

Knowledge has expanded at least by "that much" in the last 100 years. We grasp more.

Yours faithfully, PATRICK WINTERSON, 25 Comberton Road, Barton, Cambridge.

Opposing view

Sir, - Your report on the settlement of 4 per cent in the Burnham further education committee (THES, May 4) gave the impression that the Association of Polytechnic Teachers (among others) would have willingly accepted a 4½ per cent salary rise.

The fact is that, prior to the meeting, the APT had circulated a paper for the management panel asking that, if they could not agree to an increase of around 12½-15 per cent to give parity with university salary scales, then they

should send the claim to arbitration. The APT still holds that view.

In the light of the agreement which was proposed between the National Association of Teachers in Further and Higher Education and the management panel - and opposed by the three unions, the APT, the Association of Principals of Colleges and the National Society for Art in Education - I have written to the chairman of the Burnham committee to indicate the dissent of the APT.

Yours faithfully, A. J. POINTEON, National secretary, Association of Polytechnic Teachers.

Not so easy

Sir, - Can I hasten to correct something in Patricia Santinelli's feature on the Youth Training Scheme in Bedford (THES, May 18).

I certainly did not say that YTS teaching is easy - would that it were! I did recount the comments of one of my staff, who observed that, by comparison with all that goes on outside the classroom, the actual teaching in the classroom is the easy part!

Yours faithfully, DERRICK LYNE, Director, Bedford College of Higher Education.

Satellite found

The new Surrey University satellite, UOSAT-2, has been revived after 10 weeks lying dormant in orbit. The satellite, designed for use by university and school scientific groups, fell silent shortly after launch in March.

Faint signals from UOSAT were picked up 10 days ago in Greenland and the Surrey team regained full contact last week. They will now try to find the cause of the fault before adjusting UOSAT's orbit.

Student appeal

Two of Middlesex Polytechnic's faculty boards have supported a student union call for a thorough review of the polytechnic's disciplinary code.

Earlier this year eight students were suspended after an occupation of one of the polytechnic's sites - one for five years. The suspensions have been temporarily lifted following an adjournment of their appeal hearing.

Keele v-c

Dr Brian Fender, aged 49, is to succeed Dr David Harrison as vice-chancellor of Keele University, in October. Dr Fender is director of the Institute Max von Laue-Paul Langevin (ILL) in Grenoble, France, which is funded jointly by France, Germany and the United Kingdom as a world centre for the use of neutrons in the study of a wide range of biological, chemical and physical systems.

Napier degree

Napier College in Edinburgh is launching a part time honours degree in business studies in 1984/85. The course, which has been approved by the council for national academic awards, is designed for late entrants to higher education, and is expected to take an average of five years to complete. The annual fee will be around £75, with special exemption for the unemployed.

CELP call

A call for the wholehearted participation of local employers, big and small, was made by Mr Peter Brooke, junior education minister, this week when he launched the second College Employers Link Project (CELP) in Trowbridge, Wiltshire.

The first of the CELP projects, in which eight local education authorities are to participate, was launched last month in Hertfordshire, by the Secretary of State for Education. The main objective of the project is to encourage colleges to pay particular attention to good management and providing value for money.

Natthe post

The college lecturers' union has appointed Mr David Triesman as its new negotiating secretary in succession to Mr Derek Weitzel, who has retired on health grounds.

Mr Triesman, secretary of the Inner London region of the National Association of Teachers in Further and Higher Education, led the union negotiators in talks which produced the provisional 4.5 per cent settlement for college lecturers.

Why Britons will never be the slaves of their genes

by Jon Turney
Science Correspondent

It's all right, the brain is still in charge. We are not the slaves of our genes. Most of the time, we needn't even ask their permission. The sociobiology debate is dead.

Indeed, from last week's debate on the ethics of science, at London's Institute of Contemporary Arts, it was hard to see why there was ever a controversy about the role of inheritance in human behaviour. The ICA's chosen protagonists, Richard Dawkins and Patrick Bateson have both come to a very similar view.

Evolution can tell us something, but not all that much, about why people behave as they do. And the more we know, the more we realise that it can tell us not all that much.

Students, staff in redundancy protest

by Maggie Richards

A threat to introduce compulsory redundancies at Goldsmiths' College has led to angry protests from both students and staff. Students have occupied the college administrative building, despite warnings from the Goldsmiths' authorities that an injunction may be sought.

Staff at the college, members of the National Association of Teachers in Further and Higher Education, claim the college has brushed aside formal negotiating procedures. They are at present conducting a postal ballot with a view to organizing a half-day protest strike.

The dispute centres around two full-time posts and a number of part-time appointments on the college's visual communications course.

Students say the college is attempting to change the practical and theoretical balance of the course. They are resisting what they see as a bid to swing emphasis away from practical involvement in the use of media equipment, towards the more theoretical sociology studies element.

Staff are concerned at the implications of allowing redundancies to proceed without full negotiations. They are also keenly aware that the outcome

of the dispute may have an effect on Goldsmiths' application for school status from London University, in order to facilitate a merger with Queen Mary College.

Students began their occupation last week, following a meeting attended by more than 400 people, the largest union meeting the college had seen for some years.

A well attended Natthe meeting also passed a resolution on conducting a postal ballot. Natthe representatives are to meet the college authorities for further discussions next week.

A statement about the dispute was issued this week by Dr Richard Hog-

gart, warden of Goldsmiths' College. He said the college, like other education institutions, had to respond to the Government's policy on cuts elsewhere, totally outside its control, and seemed not free to refuse to implement them, he added.

The college says any individual declared redundant would be given a year's notice, to aid their search for alternative work.

Call for token strike over Gwent lecturers

by David Jobbins

A call for a token national strike by college lecturers in support of 350 fellow union members facing the sack for refusing to accept heavier teaching loads will be made this weekend.

An emergency motion calling for the sympathy action against the Labour-controlled Gwent County Council is certain to be tabled and carried at the annual conference of the National Association of Teachers in Further and Higher Education in Birmingham this weekend.

Gwent has issued about 400 lecturers with notices terminating their contracts and offering re-engagement with one or two hours of extra class contact per week from September.

Natthe has instructed its members not to accept the new terms and about 350 of its members face dismissal, while Gwent has advertised their jobs. Natthe members have been instructed not to apply and face expulsion from their union if they do so. Natthe officials claim to have access to the names and addresses of the 60 or so applications already received.

An attempt to get negotiations off the ground followed before the weekend when Gwent refused to withdraw or even temporarily suspend the notices of termination of contract.

All Gwent's colleges were closed last Friday in protest and Natthe members have embarked on an escalating programme of brief lightning strikes. These were expected to begin

to disrupt examinations by the middle of the week if the authority refused to withdraw the notices.

Both sides insist that talks have not broken down but are not hopeful of a breakthrough this week. A date for further negotiations has not been fixed.

Last week's negotiations followed on talks brought about by the intervention of the Wales TUC but took place against the background of Gwent's insistence that the notices stood and negotiations should not proceed under threat.

The only concession made by the employers was that they would not start to process any job applications until after June 4.

The talks, however, went ahead

despite the strike action, and negotiators indicated they were prepared to accept issues raised by senior posts as a basis for negotiations. But they indicated they would not discuss a proposal to reduce the number of lecturers under which lecturers would be paid one hour a week of unpaid work pending the outcome of the talks.

"We went to the point of no return," a senior official said. "All members bitterly regret that we came to this, and despite the fact that examinations will be affected we continue to receive wholehearted support from the students."

Booksellers need closer liaison

by Paul Flather

Campus bookshops need to strengthen their links with their parent institutions, and liaise more closely with lists and library purchases, report on bookkeeping in higher education.

The report highlights a shortage of communication and understanding between librarians, bookshops, academics, students, and administrators in universities, polytechnics and colleges of higher education.

The report, by Rachel Evans, education consultant, and Meadows, professor of astronomy at the University of Leicester, is based on a five-part questionnaire initially sent to every university in the country.

The authors make a series of suggestions to improve communication between the bookshop and its customers, to extend the bookshop's role, and to stimulate greater knowledge of bookkeeping services.

The report says that a "strategy" on the handling of book orders appears to be used with varying degrees of success, and that liaison between bookshops and libraries is often poor.

Commenting on this, Mrs Penny Phillips, ACC social services committee chairman said: "Obviously this has tremendous implications for social services as the work of voluntary organizations is vital. Any cutbacks in schemes, whether YTS or any other, is bound to have an effect on work for the community."

The target number of places on YTS Mode B1 schemes which involve projects run by local authorities and voluntary organizations, has been cut from 80,000 to between 60 and 70,000 at the request of employment ministers in a background of substantial opposition from both the MSC youth training board and other interested parties.

At the same time, the MSC's voluntary projects programme is under pressure because of insufficient cash to renew grants to projects successfully completing their first year.

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David Jobbins and Ngaio Crequer report on the AUT council War-weariness, anger and caution for troops

by Peter Scott

Last weekend's council meeting of the Association of University Teachers demonstrated the encroaching dangers that are inexorably reducing the AUT's freedom to manoeuvre.

The first dilemma is simply that the AUT has been in the trenches since 1981 and its members are becoming war weary. Grand rhetorical offensives seem to be causing less and less damage to a well entrenched enemy. Yet these and desperate, but so far successful, attempts to plug gaps in the AUT's own line (Aston? Aberdeen?) remain the only available tactics.

The second is that the present government is less and less interested in sustaining any kind of dialogue with trade unions, even respectable and unthreatening unions like the AUT. Tripartism or corporatism are dead and buried - not that the Universities Grants Committee was ever a convert to such notions in participation. It is not clear even that the Government is terribly interested in the views of the vice chancellors who it sees as grinding (very slowly) their own special-interest axe.

The third is that the Government is increasingly hostile to trade unions which it stigmatizes as negative institutions. This withdrawal of legitimacy and respectability is particularly damaging to the AUT as a middle class union, because respectable argument rather than industrial muscle must always be its chief weapon and because many of its members may have come to sympathise with the Government's hostility to trade unions.

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Tenure: Brooke stands firm

Academic freedom did not give staff the right to continue to draw their salaries even if their university was going broke, Mr Peter Brooke, under secretary for higher education told the council.

He said: "It seems wholly wrong that the universities are now dependent on the public purse for between 80 and 90 per cent of their income, many of them still preserve terms of appointment appropriate to medieval foundations living on their endowments."

"No one is suggesting that academics should be liable to be dismissed overnight. And all employees are now protected by the law against unfair dismissal."

"But providing there are safeguards for academic freedom, we see no reason why an academic should not be liable for dismissal either for demonstrable negligence or incompetence, or for bona fide redundancy because of the financial circumstances of the university or a reduction in its teaching and research programmes."

Mr Brooke was questioned forcibly on how he could guarantee safeguards for academic freedom if the universities' defence against political pressure in the future, it said.

Dr Ron Emmanuel, Glasgow and the executive, said if financial exigency or redundancy was written into the



Mr Peter Brooke: questioned forcibly

for academic freedom, although he recognized the objective would be difficult to secure.

The council unanimously passed an emergency executive motion deploring the crude attempt to bully the universities into changing their tenure provisions and calling for a campaign to defend academic freedom. The only reason for the Government's attack was the wish to weaken universities' defence against political pressure in the future, it said.

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Union to step up pay action

Union negotiators are convinced the universities can afford to improve on a 4.58 per cent informal pay offer which was emphatically rejected by the AUT council in Manchester.

And union leaders aim to escalate the moderate industrial action being planned locally in conjunction with other campus unions if the vice chancellors refuse to move further on June 12 when the two sides resume negotiations.

While the negotiators claim there are a number of significant errors in the employers' costings, they are not prepared to put their own figure on what they would regard as a realistic offer.

Dr Andrew Taylor, chairman of the union's salaries committee, said that vice chancellors had not been prepared to make the offer of 4.2 per cent all academics and £230 for 8,500 staff stuck at the top of the lecturer scale formal unless the negotiators indicated they would recommend acceptance.

"They refused a formal meeting when requested so the formal offer is still 3 per cent," he said.

Before the June 12 meeting - a date chosen by the employers - delegates voted for action designed to demonstrate disgust at the offer. The call on local associations to coordinate their action with other campus unions, who have called a half-day strike on May 31.

But demands for a national call for militant action were rejected. A call for all AUT members not directly involved on examinations on May 31 to strike was rejected, as was the suggestion that examination marks should be withheld.

AUT leaders do not intend any support given locally to disrupt examinations. Dr Taylor said: "The AUT must take action to demonstrate to vice chancellors that we are not content with another decimal point. The point of our action is not a decimal point but a point of principle."

Dr Taylor admitted that examinations could be affected by the May 31 action.

Action open to AUT members could include a stoppage, withdrawal of goodwill, rescheduling examinations and mass meetings during working hours.

She claimed Mr Botha would seek Mrs Thatcher's cooperation in imposing restrictions on South African liberation movements.

Dr Anne Ridehalgh (Southampton)

£1,000 for miners

Council delegates voted for an expression of support for striking miners and a £1,000 donation to the miners' fund.

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Botha visit meets with disapproval

The planned visit to Britain by South African premier P. W. Botha should be cancelled, council voted.

An emergency motion condemning Mrs Thatcher for inviting Mr Botha was carried and delegates pledged the union's support for protests against the visit.

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How to give planning a bad name

About a fortnight ago, 12 colleges and their local authorities or providing bodies received letters from the National Advisory Body indicating that they were to be subject to particular scrutiny as part of the NAB's current review of the viability of institutions engaged in initial teacher training. This weekend, as the National Association of Teachers in Further and Higher Education assembled for its annual conference, an emergency motion will be proposed expressing opposition to the present exercise.

Several years ago, colleges subject to such scrutiny would have seen themselves at the centre of a major educational crisis. Now it's merely one more twist in the educational planning cycle.

It has, however, provoked the association to protest particularly strongly on behalf of staff in the institutions concerned. The NAB has just completed, last November, its first major planning exercise. On the whole the verdict is that it managed that exercise both with skill, and reasonable care and concern, given the very short time scale for the exercise which it was not possible to extend. In 1984/85 there is the next major review of teacher education provision which will determine student intakes to colleges from 1986 onwards. Inevitably, the NAB has chosen to intersperse between these two exercises this short-term, ad-hoc review of the "viability" of institutions.

Viability is like quality: an elusive measure and difficult to assess even if agreement can be reached on criteria. Colleges which have existed, in some cases for the last 50 years, are clearly viable in one sense. They exist, they function and they educate students. If viability is a euphemism for unit costs, size or student numbers then we can all understand this is further evidence of the longstanding Department of Education and Science obsession with concentrating provision and reducing costs.

This is the kind of exercise which brings planning into disrepute. It has ill-defined objectives, a ludicrously short time scale, and above all a lack of conviction on the part of those engaged in the planning exercise. In the NAB, the planners, as members of the board, are broadly representative of the providers, the institutions and the trade unions representing staff interests.

It is my belief that, unlike the NAB's Grants Committee, the NAB does have some credibility among staff in polytechnics and colleges. They regard the legitimacy of many tasks which the NAB sets itself even if they don't agree with all its conclusions. In this case they clearly don't accept the exercise and the NAB would be well advised to take heed. It is not merely the voice of 12 institutions but the judgment of the system as a whole which the NAB ought to fear.

The secretary of the NAB will be at the conference and will have the opportunity of hearing for himself the views of those who teach and work in such institutions. Some of the colleges have been on the "hit list" many times before and feel a sense of despair at the continued questioning of their daily existence. The verdict must be that the NAB should think again.

Jean Bocock

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overseas news

Call for 16% increase in funds

from Geoff Maslen

MELBOURNE Australia's top tertiary advisory body has called on the federal government to increase funding for higher education by 16 per cent over the next three years.

In a report by the Commonwealth Tertiary Education Commission, the government was urged to increase spending markedly in an effort to overcome what the commission said were years of neglect and deterioration. There was a need to finance a 2 per cent annual growth in enrolments over the next three years in universities and colleges of advanced education and a 3 per cent increase in technical and further education - but in the latter case the average increase in full-time courses should be 7 per cent, the commission said.

The commission warned that universities and colleges would be forced to cut their student intakes sharply over the next three years unless the government agreed to the funding increase. This year, the commission said, it would spend more than \$2,200m on tertiary education. According to the commission, this should be raised to almost \$2,600m over the 1985 to 1987 triennium.

The extra grants to universities and colleges would create an additional 23,000 places by 1987, although as critics in higher education institutions pointed out, the level of funding per student would be significantly less than at present. The commission proposed that 40 per cent of new growth should take place in outer metropolitan areas, especially the poorer western suburbs of Melbourne and Sydney.

"A major concentration of the groups which are disadvantaged in their access to and participation in tertiary education occurs in such areas," the report says.

"Young people with gaps in their

senior secondary education, low income earners, migrants and aborigines are among them." An extra \$23m should be earmarked to promote measures to contribute to the longer term improvement of access to higher education by such groups, it said.

The commission said that the tertiary sector had been under great financial pressure since the late 1970s. While enrolments and demand for places had increased steadily since then, commonwealth funds had been held constant and in some cases had actually been reduced by the government.

The problem was particularly felt in the technical and further education sector which until recently had been neglected by both federal and state governments, and although governments had increased grants to TAFE in recent years, money for staff, buildings and better equipment was needed.

In a series of recommendations which are certain to create controversy, the commission said the government should retain the existing three sector system of higher education of universities, CAEs and TAFE colleges, although this division has come under fire from highly-placed figures in education in recent months.

The commission called for a moratorium on the enrolment of overseas students, saying any increase in numbers would reduce opportunities for local students. The commission said that there had been a 67 per cent increase in the number of overseas students entering Australian universities and colleges since 1980.

The increase had been one of the main contributing factors in the squeeze in tertiary resources over the past three years, the commission's report said. Nevertheless, overseas students still made up only about 6 per cent of all students enrolled in tertiary institutions.

Rectors want competition

from Barbara von Ow

MUNICH Competition among West German universities must be intensified to relieve pressure on the nation's beleaguered higher education system. This was the consensus among speakers at the annual conference of the West German Rectors' conference (WRK) in Hanover earlier this month.

Opening the two-day meeting of 300 professors from West Germany's 160 universities and polytechnics, WRK president Theodor Berchlin said the future of German higher education was marked by serious quantitative problems. Present capacities would not be sufficient to cope with an expected additional 200,000 to 300,000 students. Since the mid-1970s the number of university beginners had soared by 30 per cent while the size of scientific staff had stagnated and financial investments steadily decreased.

According to Lower Saxony premier Ernst Albrecht, West Germany's export dependence and unemployment problem represented a challenge for

the education system which could only be tackled by "free competition among ideas, people and institutions". This meant that students should be enabled to choose their own universities and top scientists promoted.

It was evident that more competition led to greater efficiency, Professor Peter Kleimannsgg from the academic council declared. As opposed to Germany, where competition was "deplorable", the American higher education system, the most efficient in the world, was based on intense competitiveness.

German universities should introduce student fees, receive state subsidies in relation to applicant numbers and be allowed to pick their own students, he urged. However, he admitted this system would only function if employers started to differentiate between better degrees from better universities.

All speakers agreed that competition was not an end in itself but a means to achieve greater flexibility and efficiency.

The call for a moratorium on overseas student numbers came as a surprise to academic staff and students, especially since a report by a student inquiry into the overseas students programme has yet to be published.

The commission pointed out that the most overseas students resided in the large metropolitan places where competition was usually intense.

Although the future level of overseas student numbers was a matter of government decision, having foreign policy implications, the commission said the government should remember there was a high level of dissatisfaction among young Australians for places in higher education and that money was urgently needed to employ more staff and improve facilities.

The commission said that in February 1981, it had assumed that by students would increase in number from about 8,400 in 1980 to 10,000 in 1981 and would stabilize at that level. It believed such numbers could be accommodated without difficulty by well-qualified Australian students.

But in the event, the increase in 1983/84 triennium had been greater than anticipated. Enrolment had risen to an estimated 14,000, an increase of 5,600 since 1980.

The commission called for a sustained growth in the allocation of money to higher education and new staff.

As well as proposing an increase in student numbers overall, the commission also recommended means to strengthen support for top research talents in selected fields. In particular, the commission said, the centres of research excellence at the country's higher education institutions should be increased.

Warsaw rector vetoed

The election of Dr Klement Szaniawski as rector of Warsaw University has been vetoed by the minister of science, higher education and technology, Bronislaw Mikiewicz. Although earlier this year the government had made clear that it would not tolerate university elections being used to elect a power base for "oppositional elements" in higher education, Dr Szaniawski was never a socialist activist. The minister's decision was therefore being widely interpreted as a further clampdown on the university autonomy won in 1980/81, and widely condemned in the Higher Education Act of 1982.

In fact, during the period of the election, Dr Szaniawski, as chairman of the Coordinating Committee of Learned and Creative Associations, had played a major role in the drafting of new and more liberal legislation on censorship and on higher education. Szaniawski was elected on May 15 and his name submitted to the minister for confirmation. Formally, the minister has two weeks to confirm or veto the appointment, but it was known within two days there would be a veto. However, the public announcement was delayed, allowing the government press spokesman, Jerzy Urban, to give a press conference that he found it surprising that "a political activist" should have been elected.

This is not the first time that the Warsaw elections have met with disapproval from the ministry. Some weeks ago, Dr Janusz Onyszkiewicz, mathematical logician and former chief of public relations service, was elected to the university senate. Some kind of confrontation was almost inevitable over the election of Solidarity activist, but the objection of Dr Szaniawski seems more serious. Shortly before his election, a member of the Party Politburo, Professor Porebski, told a meeting of the Polish Students Association that the Party and state leadership was determined to counteract the "capture of management posts" in the higher education by "people who do not guarantee the socialist character of the system".

overseas news

French science to borrow from banks

from David Dickson

PARIS In an unprecedented attempt to limit the damage to scientific research caused by recent cuts in public spending, the French government has authorized the two major research organizations to borrow £250m - (£22m) two organizations banks.

The two organizations which were first authorized to raise such loans last year, are the Atomic Energy Commission (CEA) and the National Centre for Space Studies (CNES).

These organizations have in their turn agreed to channel most of these funds - about £17m - directly to other research organizations which had previously been faced with the prospect of having to reduce support for some of their research programmes by approximately 25 per cent in the current financial year.

Thus the National Centre for Scientific Research (CNRS) will be able to obtain an extra £10m, the National Centre for Oceanic Exploration (CNEXO) £2.5m, the National Institute for Medical Research (INSERM) £2m and the National Centre for Agricultural Research (INRA) will receive just under £1m.

A group of leading French scientists

broadly sympathetic to the political goals of the Socialist government of President Francois Mitterrand, had strongly attacked the government's decision to cut back on previous plans for a substantial increase in its support for scientific research.

The criticism was made in a petition which had been gathering a large number of signatures in French universities, arguing that cuts in the research budget are threatening to undermine the credibility of the government's statements about the importance of science as an "investment in the future".

The petition, which had already been signed by well known French scientists such as biologist Henri Laborie and medical researchers Jacques Benevise and Philippe Kourilsky, started by underlining the basic confidence that all the signatories have in the socialist government.

The catalyst for the scientists' complaint was the recent decision by finance minister M Jacques Delors to eliminate virtually all of an 8 per cent real increase in the value of the civil research budget previously approved by the government for the current year as part of a package of economic measures.

Under the government's initial plans, this budget had been scheduled to increase by 15.5 per cent, slightly less than the 17.8 per cent annual growth to which the government had committed itself in a law passed in the summer of 1982, but still substantially higher than the anticipated rate of inflation - and that of the research budgets of virtually all other Western nations.

Now, however, it seems that the budget will remain virtually static for the current year. The government has said that it will protect certain areas of research, such as its commitment to microelectronics and biotechnology, as well as to international research projects, but others are likely to suffer considerably.

The budget cuts have been criticized by the French minister for industry and research, M. Laurent Fabius, who argued in a recent newspaper interview that "for certain types of investment, such as research, which have been chosen as priority sectors, such cuts are certain to have a damaging effect", and that he was not prepared to let research "be sacrificed to the fits and starts of financiers".

Fabius is said to have been particularly upset that he was given little

notice of the cuts before they were announced by Delors, only discovering the details in an official government bulletin on the day they were published.

He has claimed that the results will be to worsen a situation for research workers that had been steadily improving over the past few years, and would cause further cutbacks to be made in areas where wastage and excessive expenditure had already been eliminated.

Even stronger criticism of the government has come from a top level advisory committee, the Higher Council on Research and Technology (CSRT). This body, which includes representatives of both the scientific and engineering communities as well as of trade unions representing other technicians and laboratory workers, has passed a resolution expressing "a solemn warning" to the government as evidence of its "deep disagreements".

The council said the cuts seemed further evidence of the government's move to back away from commitments made in 1982 and criticized the fact that the distribution of the cuts had been decided by the treasury department without any detailed consultation with the scientific community.



The education subcommittee of the Australian Labor Party federal Caucus Committee on Social Welfare Policy is apparently considering moves which would have a great impact on academic staff.

In return for the abolition of short-term appointments at all teaching levels, and the introduction of an early retirement scheme, the subcommittee proposes that there be radical alterations to the academic salaries scale.

Under the proposal, there would be only three salary rates - one for tutors, one for lecturers and one for senior staff. The level suggested for the "senior" salary level is around \$30,000 (£18,750) or about \$18,000 (£11,250) a year below the current rate of pay for professors. Staff on higher salaries would be "frozen" until cost of living etc adjustments brought the new pay rate in line with the frozen rate.

The Federation of Australian University Staff Associations offers the following comment, with sincere apologies to Laurie Taylor. Ah Perkins, sit down, sit down.

"Thank you Vice Chancellor Perkins, we have this problem in the Engineering Faculty. Yes, Vice Chancellor?

It seems to be the same as the problems we have recently experienced in Law, and in Architecture, and in the Science Faculty. Not to mention Business Administration, Economics and Medicine.

You mean the staff problem, sir? That's it Perkins, that's just it. A staff problem. To be more precise, a lack of staff problem.

Could it be the new government prescriptions on salary scales, sir? Just so Perkins. Very perceptive of you. All three professors of engineering have resigned. Darvall mentioned something about commitments on his farm. Miller said he was going into the used car business. And Morrison has picked up an Assistant Commissioner job in the Tertiary Education Commission.

I had heard something of those cases. Added to which both Readers have resigned - they are setting up a joint consultancy I believe.

They said something about earning twice as much their current salaries in the first three months, I believe. Yes, yes. Which means they will be earning more than they used to under the old salary system.

It doesn't seem to be working very well, does it?

But that's not all Perkins. Not at all. All the Senior Lecturers have resigned. Yesterday. En masse.

Well, most of them were on the maximum of the salary range, sir, which is above the new "senior academic" salary set by the government.

Quite so Perkins. And now - do you know what has happened now?

Not more resignations, sir? The lot, Perkins. All the Lecturers went today, taking the Tutors with them.

But surely the Tutors would have stayed, sir? Their pay wasn't cut? Lack of morale, I'm told. No career to look forward to. But let me come to the point. You've worked in Engineering now for - how long is it, Perkins? About 20 years, sir.

And you're not going to leave us? Oh no sir.

Good. Well this is your lucky day. I've advertised for a month now and there's not a single taker for the Chair in Civil Engineering. I've decided it's to be yours. Think you can handle it?

I'll give it my best shot. That the spirit. You start immediately. Here's the key to Professor Darvall's door. Leave that bucket and mop here - and you'd better change out of those overalls.

Thank you, sir. On your way out, ask Miss Turner to send Mrs Ramsbottom and Mr Tucker from the cafeteria to see me.

Certainly. And also ask her to bring in a full list of the ground staff.

Les Wallis

The author is general secretary of the Federation of Australian University Staff Associations.



For Sahrawi children, education is a priority

Building a society in the middle of nowhere

Speeding across the desert in an open Land Rover, it is difficult to know just what to expect next in a far corner of Algeria. At 25°N, classified as "extremely arid", by rights no one should be living here. Certainly no body would choose to.

Yet, out of the dust and sand loom tents and painted mud buildings. This is the home of 150,000 refugees who fled a war far away to the west. You might well expect a frightened, demoralized and malnourished population.

A visit to the camps of the Sahrawi is guaranteed to change this traditional image of refugees. Even in this completely inhospitable environment where no one lived before, a society is in the process of rebuilding itself.

The Sahrawi are the people of the former Spanish Sahara. Instead of de-colonizing the country, Spain - in a secret agreement with Morocco and Mauritania during 1975 - gave the country away. Not surprisingly, the people have been fighting a war for their right to self-determination and independence since then.

In April, a party of five undergraduates from Oxford University visited the camps of these people. The expedition was organized as part of the activities of the Third World First Society and the Refugee Studies Programme at Queen Elizabeth House.

When Morocco invaded in 1975, the Sahrawi were forced to flee their homeland and seek safety miles across the desert in Algeria. Travelling by night for fear of aerial attack, they took only what they could carry. During their flight they endured napalm bombing, and upon arrival, a measles epidemic killed many of their children.

In an area devoid of vegetation, they are totally dependent on outside aid. But they are doing everything they can for themselves. Today,

nearly nine years after their flight, we were able to attend the opening ceremony of a new centre for training the physically handicapped. And this is only part of the extensive educational system which they have established under extremely difficult conditions.

The Sahrawi needed no outsider to tell them that education was a priority. We saw children in classrooms made of mud with three or four sitting at desks made for one, eager to learn and responsive to their teachers. As Mohammed, a bright cheery boy of 15 put it: "We are allowed to go home some weekends, but most of us prefer to stay and get on with our studies." He was already quite fluent in English having studied it for three years.

And it is not only the children who are studying hard in their temporary tent homes. Adjacent to Mohammed's school is the El Quail Technical College - opened at the beginning of this year. A captured truck frame awaits its first budding vehicle mechanics and sewing machines are ready for the teaching of "industrial skills". Students at this college take a preparatory course in Spanish, the language in which all technical training will be carried out.

When independence does come to the Western Sahara, this impressive establishment will be left on the sand flats as a silent reminder of just another war.

The Sahrawi are trying to make up for the neglect of education under Spanish rule. They are particularly concerned about the education of women. Their response has been a school named "February 27" for adult women of all ages. Five hundred women come every year, bringing their tents, their young children, and sometimes their elderly relatives.

Richard Black

PhD candidate to present new evidence

from E. Patrick McQuaid

CAMBRIDGE, MASS Mr Stephen Mosher, the Stanford anthropology PhD candidate "rusticated for seriously unethical conduct" while carrying out field work in rural China, has been given the chance to present new evidence on his own behalf. The university contends, however, that supplementary evidence will be most unlikely to alter the decision to send him down.

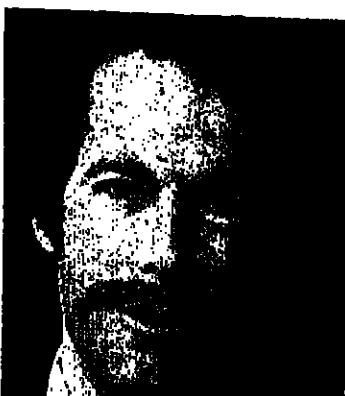
On May 1 the president of Stanford, Mr Donald Kennedy, wrote in confidence to Mr Mosher regarding the presentation of new material for his case. Recently the university's public information office had to release parts of that correspondence after Mr Mosher read them aloud to news reporters.

It would appear, from the university's standpoint, that new evidence will only further support the ruling against Mr Mosher, who has threatened legal action ever since his termination from the doctoral programme by an eleven to one vote by the anthropology teaching staff on the February 24

1983. He has, subsequently, authored an intensely popular book, *Broken Earth*, and has continued to blame his rustication on "falsifications" allegations from his former wife coupled with political pressure from the Chinese authorities.

Mr Mosher published, in a widely read *Taiwan* magazine, while in the field, accounts of forced abortions in the Chinese countryside at state-run clinics. Stanford and anthropologists elsewhere claimed he breached contracts with the People's Republic, endangered the well being of his subjects, and put future field work by American scholars at risk with the Chinese. Mr Mosher contends that, according to an academic hearing in November 1981, his work was not to be terminated, but that Stanford gave way to political blackmail from Peking.

The teaching staff agreed that their decision to recommend termination of his contract to Mr Kennedy came in light of facts presented to them before revelations that Mr Mosher had published an article critical of China in a



Mr Mosher: second chance

magazine whose publishers have an admitted axe to grind. "New and more serious questions of misconduct" arose soon after, according to Professor Albert Gelpi, who served as hearing officer. These included documentary evidence, all of which was shared with Mr Mosher, he said.

"In the end," said Professor Gelpi on behalf of the panel, "we received no response or commentary on the new evidence. Mr Mosher has produced no evidence - he has made no specific refutation of the information relied on, nor denied, except in the most general terms, the evidence as presented."

The Gelpi committee had agreed, from the outset, not to consider any evidence whose source could not be made known to Mr Mosher. The president has asked Mr Mosher to reply with any new evidence by June 1.

So far, 19 people - 12 on the anthropology staff and seven scholars from other Stanford disciplines - have agreed with the original departmental decision against Mr Mosher. They have also concurred unanimously that a 47-page report form the investigating committee, upon which Mr Mosher's case was based, should not be made public. Mr Mosher, according to Stanford, was given a copy of the report and invited to respond both in writing and in person prior to the department's decision.

In the first of a two-part series to mark the British Council's fiftieth anniversary, John O'Leary meets Sir John Burgh, the director general, and looks at its higher education work

If the British Council was as well-known and highly valued in its own country as in most of the 81 others where it has offices, the job of Sir John Burgh, its director general, would be a great deal easier.

The ubiquitous libraries, promotion of the arts and participation in education projects give the council a reputation abroad which it has never come near to matching at home. Ask the average Londoner what the council does and it would be a considerable surprise to get any kind of an answer. That paradox - a natural one since the council's mission is to promote Britain overseas - is at the root of the financial difficulties which have beset the organization over the past five years. And it is a situation which it hopes to remedy by seizing on the occasion of the council's fiftieth anniversary to grab a little of the limelight.

The Queen will visit the council's headquarters, off Trafalgar Square, next month at the start of a carefully prepared sequence of artistic, educational and social events designed to bring the organization to the notice of those in influential positions. In a typically direct and clear-sighted way, Sir John has decided that attempting to win over the general public is not a productive way of using the time or money at his disposal. A popular campaign could only be a long-term investment as a means of influencing Government policy, and Sir John wants results quickly.

Indeed, he has been accused of wanting results too quickly during his time as director general. But financial circumstances left him with little alternative. A vicious budget cut, whittled down somewhat to 18.5 per cent over four years, was ordered almost as soon as he had been appointed. It was too large a sum to find through trimming of any kind and Sir John's solution was to turn the council upside down in a ruthless

Making friends for Britain

exercise which eventually won respect, if not friends.

Every aspect of the council's work was reassessed and Sir John did not hide his view that a shake-up was overdue both in working methods and in key personnel. Concepts such as activity analysis, designed to relate costs to objectives and evaluate results in detail, were unheard of in Spring Gardens and the 112 offices around the world. But they were forced through and they brought results.

At the end of the four-year economy drive, a much larger proportion of the budget went into operational activity and the volume of work had been maintained. Such an achievement did not go unnoticed in high places, although it did not prevent the Treasury effectively seeking a further 8 per cent cut this year by refusing to compensate the council for higher rates of inflation overseas or for a substantial rent increase on its headquarters following the expiry of a 10-year agreement. The two together added up to a bill of £4m just when the council had been led to expect level funding at least.

Indeed, Sir John had written in his annual report: "Consolidation is not a static process. No matter how good the systems, provision has to be made for the future. I therefore first approached the Government in June 1982 about our budgets from 1984/85. From that year onwards, we should not contemplate any further diminution in the council's activities."

Indeed, some increase in funding is most desirable: for lack of resources in a number of areas, the council cannot reap the full benefit from its

Sir John believes the council's objectives should all boil down to "cultural diplomacy"

current and historic investments. Fortunately for the council, it appears that one of its greatest admirers is Mrs Thatcher, the Prime Minister, who has seen its activities on numerous foreign tours and may be presumed to have approved of the conduct of the cost-cutting exercise. It was she who arbitrated when the Foreign Office, as the council's sponsoring department, failed to reach agreement with the Treasury. And the outcome - the award of the full £4m - was about the first stroke of financial good fortune since Sir John arrived.

The rest of the good news, such as the fifth of the council's income which now comes from earnings, has been strictly a question of judgment and hard work. Commercialism is also a quite new concept for the organization but one which has had to be adopted with vigour.

Sir John says: "There was a realization that there was no need for the council to be wholly non-commercial to fulfil its objects; they could also be fulfilled by securing payment from those who could afford it. I cannot see anything wrong if other countries or individual institutions are able to pay for things which they need, that the British Council should offer its expertise and knowledge to them."

It is an approach which has brought conflicting demands on the council,

which is acting at one moment as the commercial enterprise in the developed world, and in the next as the philanthropic distributor of overseas aid. As far as Sir John is concerned, it all boils down to "cultural diplomacy" or "making friends for Britain". It may require different talents in different countries, but the object remains the same and any income which can be generated is a bonus, albeit a necessary one when public spending is under such pressure.

The trouble is that cultural diplomacy (making use of Britain's excellence in the arts and education to build advantageous links for the future) is not something which is readily understood even by those in Britain who have come across the council. "Morris dancers to Siberia" was the image one journalist had of its activities at the press launch of the last annual report, while many others question the need for spending in Europe and North America, mistaking the council for an arm of the Overseas Development Administration.

In fact, the arts blockbusters, such as overseas tours by the Royal Shakespeare Company, represent a very small percentage of activity. And the new realism at the council sees operations in the developed world as increasingly important both in terms of potential trade and of traditional di-

plomacy. Other countries appear to have no doubts: both France and Germany, for example, spend more and are much more familiar with the notion of cultural diplomacy. Despite the success in reducing the year's budget, the main obstacle to the council's ambitions remains a shortage of resources. Sir John may have achieved the Government's cost-cutting targets, but he is ambivalent about his justification. "I have never made any secret of the fact that I think a substantial cut has actually helped because it made us look at our costs," he says. "But I think we were over 12-15 per cent would have been reasonable."

"It has had the consequence of making ourselves less efficient than we were before. I think it is desirable, and also means that we just cannot take on opportunities that come our way. Immediately gives two examples. Brunel, where other countries have recognized the scope for educational consultancy in an oil-rich society, the council cannot afford to open an office; and Spain, which has two-thirds of the cost of increasing postgraduate scholarships in Britain from 30 to 100 but the council cannot raise the remainder."

The squeeze has also had its intangible effect on the staff. Sir John admits: "The fact that we have such increases in productivity does indicate that sometimes people are working under incredible pressure. It is really a seven-day week for people who are not used to such a pace of work."

That would certainly go for Sir John himself, but he has no regrets about taking the job, which he describes as "stupendous". His only doubts came after a telephone call in Singapore from his deputy, Mr. Roddy Cawley, warning of the likelihood of the cut. Three weeks of depressive self-cut before he could fully immerse himself in yet another struggle.

Now that the battle is won, Sir John and his colleagues are determined that the anniversary should be used to give the council the chance to show its potential exists in its unsung activities.

Universities enter the first division

The council's activities in higher education are split between two divisions and have changed substantially in the last three years. Not only has the Inter-University Council for Higher Education Overseas reluctantly joined the fold, but the whole approach has changed as a result both of the wind of change blowing through the British Council and the onset of full-cost fees for overseas students.

The hostility with which the universities greeted their new partners has largely given way to a realization that the larger organization has advantages which can be exploited financially as well as academically. The prime example of the new role promises to be as a recruitment agency for students abroad, but a number of similar services have already been offered on a smaller scale.

A review of the higher education division, which grew out of the incorporation of the IUC, will take place later this year. However, although it will be undertaken by a high-powered team of representatives from the Overseas Development Administration, the academic world and the council itself, there is no suggestion that fundamental changes are on the way. Certainly, Sir John is well pleased with the new arrangements and, if parts of the university world remain lukewarm, even they would have little enthusiasm for a further upheaval.

When the review was promised, three years ago, the climate of opinion was very different. Vice chancellors at home and abroad felt that they had been railroaded into a working system which they controlled and which activities would be lost in the bureaucratic machine of the British Council, and their influence over events diminished.

In fact, the emergence of the new division, combined with outside events and a consensus effort on the part of the council has rendered such fears unfounded. There may still be complaints about the effectiveness of the new operation, but the universities cannot (and do not) claim never been higher within the British Council and, with a vice-chancellor on the board and a committee dominated by plain, has been an attempt to win over their doubters.

With the whole world now dealt with by a single body, IUC options are greater by definition but a variety of approaches are also needed. Mr. Malcolm Dalziel, who has been heading the higher education division for almost a

year, identifies three different roles: marketing British higher education in the developed world, assisting "academic take-off" in developing countries and encouraging exchanges and a sense of mutuality in the developed nations.

His division does not have a fortune to spread around the world: £2.5m inherited from a safeguarded IUC fund and £400,000 from different sources, mainly in grants, to spend in the developed world. A further £100,000 has been added for a marketing exercise which has produced four surveys of potential business for British higher education (especially as a source of overseas students) and has six more planned over the next two years.

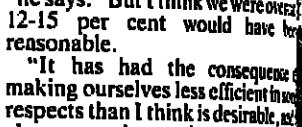
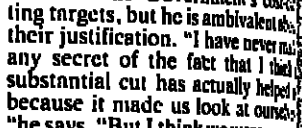
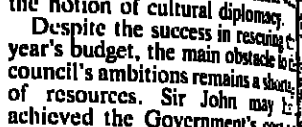
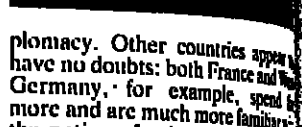
It has also organized two promotional missions, one to Jordan on behalf of the polytechnics and one by universities and polytechnics in the north east of England, which visited a number of countries. The initiatives have produced spin-offs, such as the current examination of the British PhD and its appeal and suitability for foreign students.

But undoubtedly the biggest test of the council's effectiveness in the higher education field will come if the proposed new overseas student recruitment scheme goes ahead. That depends on virtually all the universities agreeing to pay towards the running costs, since the council will not subsidize the scheme and membership fees will be prohibitive unless there is widespread participation.

It is a role which council officials are keen to adopt and one which they are confident could pay handsome dividends, both for the institutions in Britain and for students abroad. In need of reliable advice on suitable courses, the council's overseas representations already such a service and ad hoc arrangements onto a fully organized footing.

The more traditional IUC work of building up and maintaining academic links with overseas universities and accounts for much of the work of both the higher education and the science technology and education divisions. The natural emphasis on science, particularly in developing nations, makes the latter's role the dominant one in most projects.

A conference of vice chancellors from all over the world will form the highlight of the higher education contribution to the fiftieth anniversary celebrations. In keeping with the new, more active image it will be a congenial gathering but business will never be far from the surface.



Key figures in the press's history. From left Cardinal Wolsey, Richard Bentley, R. T. Wright, Stanley Morrison and Geoffrey Cass.

Pressing on

Paul Flather on the chequered history and burgeoning present of the Cambridge University Press

Every second Friday afternoon in term time 18 senior Cambridge dons gather in an upstairs room of the Pitt Building, off Trumpington Street in the city centre, for what must be one of the most enviable tasks in the academic world. As members of the syndicate governing the Cambridge University Press they have to approve every forthcoming title, knowing that any work they deem to be of "undoubted scholarly importance to the discipline" will be taken up by CUP at some point.

No other publishing house, works like that. It does not mean the syndicate, currently headed by Professor F. H. Hinsley, the former vice-chancellor, has an easy task sifting the referees' reports to decide the relative merits of different works. But it does mean scholarship is valued before economics, although overall the press clearly has to strive for returns to cover "lost leaders".

The standing of CUP today, with its undisputed claim to be the world's oldest press still in operation, is testimony to its major contribution to the dissemination of scholarship around the world, a remarkable story on any account. It has already published the work of such luminaries as Milton, Donne, Newton, Harvey, Wesley, Moore, Housman, Rutherford, Whitehead, Russell, Eddington, and James. Perhaps Milton's *Lycidas* and Newton's *Principia Mathematica* stand out, as does John Baskerville's great 1611 bible of 1763, using his celebrated

type. The Acton launched the famous *Cambridge Modern History* series in the 1890s, while more recently there has been Sir Steven Runciman's *History of the Crusades*, Needham's great *Science and Civilization in China*, and the *Cambridge Anglo-Saxon* series, the *Taylors on Anglo-Saxon* architecture, Elton on the Tudor Revolution, Taylor on Hegel, Robertson on Greek art, and continuing projects to produce the collected works of D. H. Lawrence, Conrad, and Darwin. The latter expected to run to 30 volumes. The first three of a *New Shakespeare* series come out in the summer.

It is a remarkable story, and a typically English one, as Michael Black, editorial director emeritus in his new history of the press. Its origins in 1534 are well documented though the first 30 years, until the first book is printed, remain slightly mysterious. Then for long periods the press was run by a congenial, amateur, yet when it happened, interspersed with bursts of rapid change, culminating in the early 1790s, which has left CUP with several millions in its reserves and a budget as big as that of the university itself, at around £40m.

Certainly the press benefits from its charitable status, shared only by the University Press among publishing houses in the UK. This allows it to avoid paying corporation tax but any surplus simply has to be ploughed back. It has no shareholders or investors. It is a un-

iquely Cambridge invention, to disseminate learning, as enshrined in Statute J of the university charter approved after a Regent House vote in 1582: "There shall be in the University a University Press which shall be devoted to printing and publishing in the furtherance of the acquisition, advancement, conservation, and dissemination of knowledge in all subjects; to the advancement of education, religion, learning, and research; and to the advancement of literature and good letters."

The press dates from 1534 when after a petition to Cardinal Wolsey Henry VIII granted Letters Patent to the university empowering 'the chancellor, master and scholars, and their successors for ever, to appoint three stationers or bookprinters with lawful and incontestable power to print all manner of books approved by the chancellor, or his deputy, or three doctors'. The university moved quickly, appointing Nicholas Spryng, Garrett Godfrey, and Segar Nyeolson as its first three printers.

PHILOSOPHIA
NATURALIS
PRINCIPIA
MATHEMATICA

AUCTORE
ISAACO NEWTONO
SAGITTAE AVARITIAE

EDITIO SECUNDA AUCTORE ET REVISORE



Newton's *Principia Mathematica*

These letters predate all other patents, even the charter given to the Stationers' Company by Mary in 1557, and Oxford, which only got its letters in 1632 when Archbishop Laud, then chancellor, secured them from Charles I. The only other rival appears to be the Vatican Press set up in 1587 under a Papal Bull by Sixtus V, while presses such as the distinguished Orell Füssli Verlag of Zurich cannot claim direct links to the early sixteenth century.

No university books appear to have been printed until 1584, at least none survive. The year before the university appointed Thomas Thomas, a fellow of King's College, as printer, and he began printing four or five books the next year, including not to be outdone, Whittaker, Oxford's new printer immediately appointed in 1585, and printed its first book in 1585 though its patent took 47 years longer.

Those early years were fraught with difficulties. The year Thomas started printing his press was seized by the Stationers' Company eager to defend its London monopoly. He was allowed to continue only after a successful appeal to the university chancellor, William Cecil, Lord Burleigh, and the Letters were declared authentic. The first books appear to have been mainly by Cambridge scholars and theologians as a way of making their lectures available to the few disparate groups of scholars. Few copies were printed of each and the press just about broke even.

Thomas printed classical texts; philosophical textbooks, and theological

trinites. His most famous work was a Latin dictionary which he compiled himself, reprinting several times. His printing house was opposite Great St Mary's Church, now covered by the Senate House lawn. The most celebrated printers the next century were Thomas Buck and Roger Daniel who produced the 1629 Authorised Bible. Buck first rented then bought as his printing house the old refectory of the Augustinian friars which stood in Free School Lane, near to where Friar's House stands today. Buck and Daniel first published Milton's *Lycidas*.

John Legate then printed the first Bible, the Geneva version in 1591, making CUP the oldest bible press in the world. The tradition continued with the Authorised Version, Baskerville's folio version in 1763, the revised version in 1881, and most recently the New English Bible. Bibles allowed Cambridge, and indeed Oxford, to subsidize the publication of other scholarly works. The Protestant churches approached CUP to print the NEB precisely because they knew any profit would only go to further scholarly publication.

The early years of the press were also a struggle to establish its independence, as Black puts it from "under the thumb of the central authorities". Thomas did not just offend London printers with his books, he offended the theological orthodoxy.

Since Thomas, an unbroken chain of university printers have been appointed up to Philip Allyn who took the office last year. What is striking is more the similarity between Thomas and say Charles John Clay, who took over in 1854, than any changes. Note should be taken of Richard Bentley who in the 1690s saw the need for the university to do more than pass on its printing licence, and urged it to acquire some kind of capital holding. It became more of an institutional learned press and acquired premises and equipment. The syndicate, which had replaced the "three doctors" took over real powers leaving the printer as much more of a manager.

In 1833 the Pitt Building, financed by public subscription in memory of William Pitt the Younger, was opened and became the press head quarters until the new Edinburgh Building, named after the Duke, who is also the university chancellor, was opened by the Queen in 1981. In the 1840s, the press hit its first major financial crisis. A recommendation was made in 1852 to bring in some outside commercial expertise and to set up a partnership, and in 1854 Clay, with his good London connections, was appointed printer.

Under Clay and his family successors the press picked up and by the 1870s had emerged as a major academic publisher.

Clay was naturally entitled to take out his profit from the partnership and gradually a power battle developed, leading to the rise in status of the syndicate secretary acting as the university's agent, largely in the partnership with the Clays was dissolved, and the press continued in a scholarly manner until the 1970s when it was faced by its second major financial crisis, as it was with a £2m overdraft and its future was in jeopardy.

Recovery is firmly attributed to the arrival of Mr. Geoffrey Cass, a consultant, with wide publishing and academic experience, the latter while a



The printing house in Free School Lane

don at Jesus College, Oxford, based in the social administration department, who had also played at Wimbledon four times. Cass was brought in at the end of 1971 by Lord Todd, then chairman of the syndicate, to save the press from what Cass terms "an unduly scholarly mode of management". All publishers, overconfident after the 1960 boom, had overstocked and strained their cash flow, CUP more than most, leaving itself quite unprepared to cope with inflation at 20 per cent and more.

Cass cut print runs by two-thirds, squeezed royalty payments, reduced stock holdings, improved the credit balance, and cut costs everywhere, ending up in 1984 with 250 fewer staff than he started with in 1972. He also strengthened the management team, becoming chief executive himself, and by 1973 the press was in the black again.

His other big coup was winning charitable status for CUP. The idea was first discussed in the 1940s. Cass argued that as the printing and publishing arm of the university, the press was intrinsically charitable. It existed solely to serve the educational and academic community, had no shareholders, no access to capital, and all "surpluses" were ploughed back. The Inland Revenue concurred. CUP followed suit soon after.

At a celebratory dinner on a wet evening in February in St John's College, marking the press's four hundredth anniversary, Cass explained to the Duke of Edinburgh and 200 guests just how remarkable the recovery has been. In 12 years exports - now accounting for 71 per cent of the press output and going to 153 countries - have jumped five-fold. Most British publishers export 30 per cent of their turnover. The US naturally has the biggest market, but Japan and the Middle East are also important.

In 1884 the press put out 20 new titles. In 1972 it was 200, and this year there will be 800 new titles, with overall close on eight million publishing units expected, making it, with OUP one of the two largest academic and religious publishing houses in the world. CUP currently has more than 7,000 titles in stock, more than 500 different Bibles and prayer books, and publishes 1.5 million examination papers and now 67 learned journals a year.

Sitting in his office overlooking the huge CUP insignia on the side of the Edinburgh Building complex, Cass was able to describe the press today as a "tightly run ship". "People always say we have done well because we are a charity. But we still have to run a commercial enterprise. The pleasure for me is that we do not have to exploit anyone and we can put all our surplus to producing more scholarly books."

Cass has also helped pilot through a revolution in technology at the press from mono-typesetting to computer-aided photocomposition and lithography printing. Almost all work in the press's huge printing presses is now

computer aided, with setting on IBM typewriters. A lasercomp even allows the very best hot metal typesetters to be put on print. It is all a long way from the Caxton Press, and the skills of Stanley Morrison, typographical adviser to the press in the 1920s. As Black puts it, the only links with Gutenberg now are the letters and ink.

The changes will open new horizons, for example solving at a stroke the problem of stocking. Economic print runs can be as low as 50 copies, replacing the old runs of 1,000 and more with sales trickling over 20 years. Even so three million books are currently stored in the warehouse.

Black now hopes the Darwin works will all be computerised allowing all sorts of textual research. He looks to the future with excitement, having already piloted through the press the enormously successful Simple Mathematics Project (SMP) in the 1960s and nursed the Lawrence and Conrad projects. His own favourite CUP "cathedral" though is perhaps the reprinting in 1963 of *Scrutiny*, F. R. Leavis's famous critical journal of the 1930s.

Darwin starts its run this year, Conrad and the exciting Lawrence project continues, the latter with the publication of a brand new novel *Mr Noon*, and a full, unexpurgated, version of *Sons and Lovers*, a sixth longer than the more familiar version. A History of Japan is being launched, as has a new general general and academic reference unit, eventually planned to rival Oxford's is more famous set up. Astronomy has been the first target, and the new journals include *Astronomy Express*.

Other new journals include *BioEssays*, to cover news and research in biotechnology, and *English Today*, which aims to do for the language what *History Today* has done for the past. New European links are being fostered, and the press claims to publish some European scholars from Italy and Germany first. It has a standing relationship with the Paris-based *Maison des Sciences de l'Homme* for joint ventures. The huge incursion into the highly lucrative EFL market continues, the Cambridge Educational Programme, started in 1978, is expanding, the Shakespeare series is about to start, and great things are expected from the new micro software unit.

Cass has certainly allowed the press to enter its fifth century in full throttle. He has also, in Black's view, brought the press much closer to the university in its aims and its enterprise. Above all he has given the press the commercial input it badly needed without throwing it off its scholarly course. No wonder the 18 syndicate members have such an enviable task. There is to reason which, not how.

Cambridge University Press 1584-1984, by Michael Black to be published by CUP on June 6, price £12.50.

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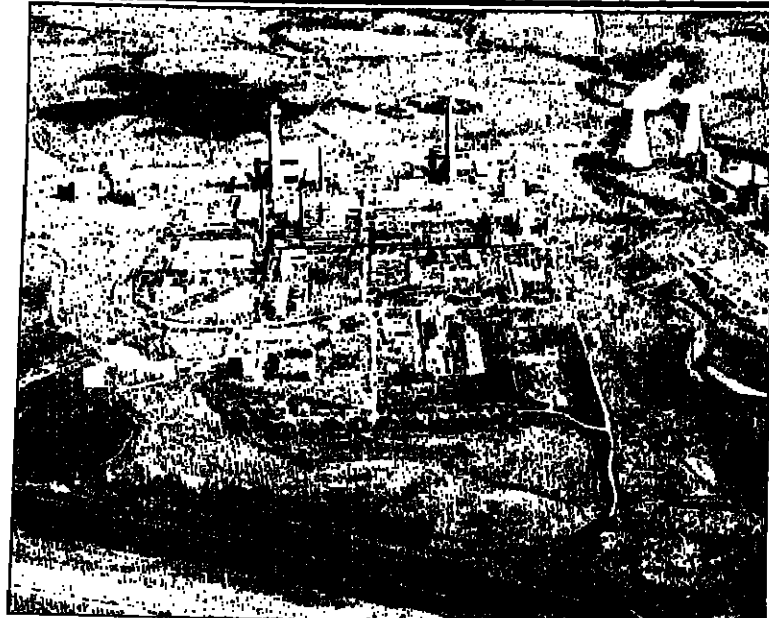
Praise or blame for both circumstances are commonly laid at the door of scientists and technologists. This is the most powerful reason why the importance of science for the rest of academe extends beyond the long-standing wish of British governments to induce production of more technically qualified graduates. Increasingly, academics in disciplines outside science are preoccupied with the doings of scientists: their practices and institutions; their modes of thought; their manners and mores. As science and technology have become more deeply enmeshed in industrial economy and culture, it has become more important to understand how they work. How do scientists know what they know? How do they choose what to study? Where do their ideas come from? How can the technologies they work underpin be channelled or controlled?

Out of these concerns has grown a diffuse area of study which brings together traditional approaches to the history and philosophy of science with new insights from other disciplines in a recognizable speciality, most commonly known as "science, technology and society", or STS. Efforts by STS scholars to establish a proper presence in higher education go back around 20 years, although the areas has older roots. And the speciality is still trying to work through an uneasy relationship with its main objects of study. Applying the instruments of other disciplines to the sciences, which for most of those disciplines still set the standards of adequate knowledge, sets up tensions as acute as any in academic life.

These and other tensions have been there from the beginning of STS studies, between the two world wars. The first full framework for academic study of the relations between science and society was laid down by the great crystallographer Desmond Bernal in the 1930s - Bernal's remarkable *The Social Function of Science* appeared in 1939.

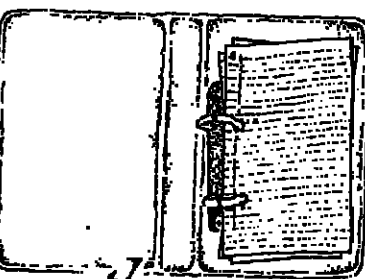
Rarely has a single writer mapped the concerns of a new field of study so comprehensively. For although Bernal acknowledged a debt to others, including Julian Huxley and Solly (now Lord) Zuckerman, *The Social Function* was very much the work of a man. And Bernal's concerns - technological unemployment, the arms race, organization of research and the role of science in history - loom large today in work under the STS banner. Bernal had the advantages of the pioneer. When he introduced his topic it was still necessary to explain what he was driving at. As he wrote: "What is the social function of science? A hundred or even 50 years ago this meaningless question even to the scientist himself, far more so to the administrator or the plain citizen". But in defining his route to an answer, he touched on so many other questions and called on so many disciplines that it is now virtually impossible to bring together all the threads he gathered in a single work. This points up one of two enduring tensions in the field, between specialization and openness to new problems.

One of the take-home messages of most STS courses is that real-world problems can rarely be tackled properly by a single discipline. Framing an energy policy, for example, calls on



Windscale: where science and technology come up against the reservations of society.

Watchdogs of a brave new world



the new disciplines

Jon Turney explores the study of science, technology and society

work in economics, sociology, physics, ecology, and other areas. But if STS studies are in this sense anti-disciplinary, the people who teach such courses still fear being seen as fuzzy-minded eclectics. They yearn for the coherence of agreed perspectives and common theory, for a safe disciplinary haven respected by their academic peers.

The second tension is that STS studies are seen as subversive, in several senses. The first brand of subversion dates back to Bernal, the Marxist rationalist who argued that science could never bear full fruit in a capitalist society. He used his encyclopaedic knowledge of pre-war research and development and its institutions to buttress a conviction that the current organization of science was wrong. While this kind of analysis of science policy is now much less controversial, modern STS studies generally still have a critical edge. The problems this creates for a new area of study are obvious. As one researcher put it at a meeting on STS studies in Manchester, "our professional expertise lies in studying and analysing the practice of another profession - which has the power and holds the purse strings".

Criticizing institutional arrangements for research is all very well, but there is a more insidious subversion, practised by some in the "old" disciplines which have furnished recruits for the STS enterprise - philosophy, history and, above all sociology of science.

The American Thomas Kuhn was bad enough when he appeared to

argue in his *The Structure of Scientific Revolutions* in the early 1960s that scientific knowledge might not be cumulative - that shifts in allegiance between theories had as much to do with conversion experiences and mass psychology as experimental results.

Kuhn is a historian and philosopher, and was mainly concerned with safely distant episodes like the Copernican revolution. Sociologists of similar persuasion have analyzed much more recent developments in science, chiefly in physics, to show how theory choice is shaped by social influences. Worse, some of them want to import these ideas into science education. This was not the kind of thing eminent fixers like Lord Flowers and Lord Swann had in mind when they united in the 1980s. The twin rumples in the late 1980s. The twin rumples were to teach some of the brightest science students something about how the world worked and how to write coherently about it, and to produce better science policy and management of innovation. The growth of STS studies in the UK was, if you like, a belated attempt to bridge the two cultures.

But though the academic community in this area has grown, its impact has been limited. A report to the Nuffield Foundation by Sir Alec Cairncross in 1980 found that between 5,000 and 6,000 university and polytechnic undergraduates were taking courses in science studies; but the

vast majority were single courses as one minority component of a degree. Maintaining the position of STS studies has been complicated by the division of the field into three or more camps marked by the tensions outlined above. All recognize a common interest in the workings of science and its institutions, but there is little real contact.

The policy-researchers are themselves divided between those still developing the old project of milking the scientific cow more efficiently and those who believe it should be a different animal altogether. Just now, the need for respectability and relevance seems paramount, and many STS courses are taking on a stronger management sciences cast.

The urge toward respectability is well shown in a document recently prepared by the Science Studies Committee of senior academics. The paper, designed for school careers officers, authors of college prospectuses and other guardians of educational rectitude admits that STS is not "a coherent discipline in its own right", and claims this as an educational virtue. It links work in philosophy of science with fashionable areas of artificial intelligence and expert systems, where "conceptual minefields" have to be negotiated. And the paper points to the relevance for science policy of work on indicators of scientific performance. Most remarkable, though, it asserts cheerfully that "sociology of scientific knowledge explains how our knowledge of the world develops objectively and solidly". This runs counter to the main currents in the field.

Others in STS teaching are developing different strategies to cope with adversity. One is to set on the realization that so far the effort to bridge the two cultures has been all one way, bringing a taste of the humanities to scientists. Several polytechnic groups at the Manchester meeting that STS studies are a promising way of interesting non-science students in scientific issues.

Apert from its educational advantages this also means that STS teachers may get their own students, instead of having to fight for science students' time with science teachers who probably believe they can teach a little history and philosophy of science themselves.

If this trend develops, it may also influence research. The work needed to awaken the interest of non-scientists will probably need to be based on contemporary policy-issues, informed by the sociological approaches which have been developed over the last two decades. The difficulty for STS researchers is still marrying the theory with policy studies which are technically well-informed enough to carry conviction.

The present complaint from some STS teachers is that the field reduces to elaborate case-studies, and these are in any case all the students want to know about. The hard part is using these as a vehicle for raising theoretical problems about knowledge, expertise and technique.

If this can be achieved, there is no end in sight to the problems STS studies can try and tackle. And conferences on STS cover an extraordinarily wide range of topics, from test-tube babies to food policy, or from acid rain to undersea mining. Keeping up with these issues seems ambitious enough for now to some STS researchers and teachers. But others still argue the need for an overarching vision, a grand synthesis of STS themes and insights which would put a new discipline on a firm footing. At the moment they look like being disappointed. The main business of the STS community in the 1980s is survival. And there is no new Bernal in sight.

An irony of history

Anti-semitism is back on the political agenda. An evil most people have believed had been consigned to history has re-emerged as a social issue: the furor over *The T&S*; Roger Scruton's response to the poem in his *Times* column; his suggestion that the anti-semitic lobby had gone soft on anti-semitism; the no lesser outcry over *God Cried in Literary Review*; and the demand that the conclusion that anti-semitism is by no means a historic problem but equally that it is a problem that has changed its nature. If not moral nature, while the extreme right, in time, has been conspicuously, has reawakened a tragically familiar pattern of prejudice, there is sufficient variation in the contemporary phenomenon to talk of a "new anti-semitism".

This was the rather sombre theme of Dr Peter Pulzer's address to the annual meeting of the *Academy of Jewish Studies* on May 17. Dr Pulzer, of Christ Church, Oxford, and coming Gladstone Professor of Government and public administration in the University of Oxford, developed the alarming hypothesis of anti-semitism, far from being an artefact of the political right, is now more closely associated with the left.

Dr Pulzer distinguished at outset between a kind of unstructured and unidirectional anti-semitism and anti-semitism as a foundation of a fully worked ideological apparatus which displays hostility at Jewish people not so far from economic or political reasons as far more corrosively for their racial, religious and racial differences.

That comprehensive ideology, based on an inherent hostility between Jews and non-Jews, reached its climax (or nadir) in the Spanish Nationalist Revolution.

Two facts shifted a pattern that had developed over nearly 20 years. These were the Holocaust and the post-war establishment of the state of Israel. The Jews' suffering and made anti-semitic fellow-travelling deeply repugnant. At the same time, the emergence of Israel effected a tilt in the political balance of east and west.

Peter Pulzer is willing to date the arrival of a "new" anti-semitism to the Six Day War of 1967, a conflict that brought Israel unambiguously into the western bloc and forced left-wing sympathies on the Palestinian.

Right-wing support for Israel has tended to reconsecrate the left's traditional anti-semitism. At the same time, Jews have, in the wake of the Holocaust, moved from the political and social margins into the political and social mainstream - into the Conservative Cabinet, the upper echelons of higher education, the news media - and away from the more avant garde positions which they were associated.

The mad fantasies of John Strachan and the bogus *Protocols of the Elders of Zion* may now seem absurdly anachronistic, but there is a contemporary version of such paranoia. It is an odd and painful historical irony that such views and such twisted paranoias should have been identified with the left. Whether or not anti-semitism is part of the informing ideology of something monolithically identified as "the left" or whether we have returned, senses and suspicions beguiled by the Holocaust, to Dr Pulzer's idea of an older, less structured prejudice, is not yet clear.

It is tempting to assume that the secularizing and universalizing process of the modern world makes problems like anti-semitism irrelevant or self-solving. That is over optimistic and simplistic. It is important to bear in mind George Santayana's warning: that those who forget the past are condemned to repeat it.

Brian Moon

W. J. Forsythe looks at the moral reformation of Victorian prisoners and the methods used

Victorian reformers of prisoners have (since Charles Dickens and Thomas Carlyle) tended to be ridiculed as piously glib or to be depicted as instruments of a steely encircling industrializing society. It seems particularly worth contesting this view at present because formally defined methods of securing moral change have declined in British prisons. Today the main means of influencing future behaviour amounts to no more than the deprivation of certain human pleasures and the right to participate (for a time at least) in possessive individualism.

Certainly, apart from the oft quoted regime at Orendon Underwood, the full-blooded pursuit of the reformation of prisoners (called in the mid-twentieth century "treatment") has now almost disappeared from our prisons, which are no longer characterized by a firm belief that by earnest and zealous example, instruction and engagement, staff can hope to alter the attitudes of prisoners to themselves and others at more than a mere calculative level or can equip them with skills which will allow them to survive in the world of circumstances (always held by reformists of whatever general persuasion to be important precipitators of offences) to be successfully managed.

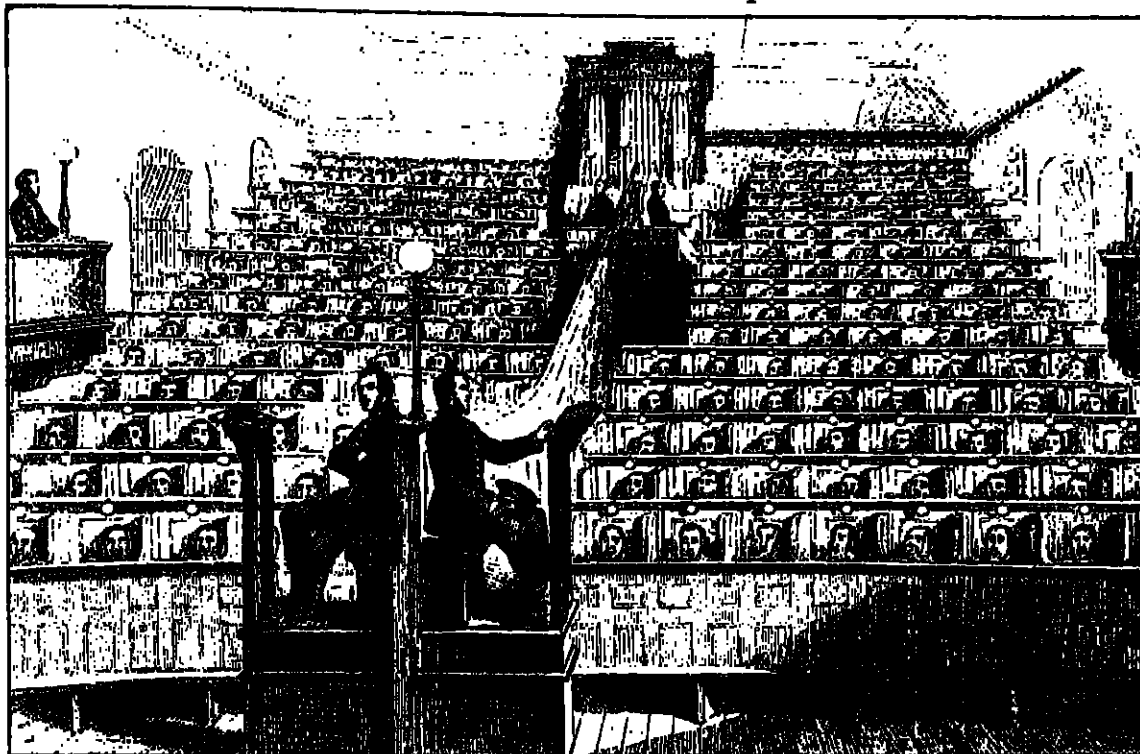
Indeed, among many people the surviving residue of the secular reformism of the mid-twentieth century has particularly been seen as dangerous because it is said to influence sentences towards an undue lengthening of custodial penalties and because it is believed to allow concentration upon the moral or psychological defects of the individual rather than acknowledgement that most crime ought to be seen in the context of the general socio-economic arrangements or of institutionalized self-reinforcing attitudes.

Of the two major philosophical strands upon which Victorian reformists based their methods the evangelical emphasis upon revival of the individual spirit is today the most widely remembered. Taking as a starting point the work of John Howard, the prison explorer, Jonas Hanway, the London philanthropist, and George Onesiphorus Paul, the Gloucestershire magistrate, all of whom had theorized during the late eighteenth century about prisoner reformation, spiritual reformists emphasized that inclusion of prisoners within human society presupposed also a determined approach to them as children of God, redeemable from universal sin by the atoning work of Christ.

Between 1810 and 1830 they campaigned relentlessly for prisons from which the allegedly corrupting influence of prisoner upon prisoner would be absent and in which illuminated Godly staff would hand the torch of faith to inmates.

Thus by 1830 evangelical members of the Church of England, assisted greatly by the energetic social reform wing of Quakerism, had played a substantial part in convincing contemporaries that prisons must become more obviously places of moral reformation. Once this step had been taken it was not difficult subsequently to ensure a strong government commitment to cellular isolation of prisoners, a device which allowed prison staff unimpeded access to the deeper sensibilities and spiritual conditions of prisoners. To such reformers their mission was one of forceful engagement with prisoners, long earnest conversations and admonitions, spiritual instruction and moral example based upon a conviction that in the lonely sorrow of the prison cell the sinner's previous life would be expiated and deep reflection led to the conviction that Christ's sacrifice, which had been wilfully rejected, could alone secure reconciliation with God, that a true religion would occur.

Thus the "separate system" prison with its corridors lined with rows of cells, its cubical chapel, its masks to prevent recognition among prisoners, its individual exercise yards, was devised as the only way to react to prisoners their true dignity as children of God, to include them within human society as "participat" heirs to the kingdom of Heaven. Furthermore, alongside the pure spiritual aspects of the system there ran the detailed programmes of education and training for employment which were seen as necessary additions, that when once the prisoner came to understand the nature of his own humanity, he would be able to reach out to take hold of the



The chapel at Pentonville, the model separate system prison.

Setting a good example

Discussion of the history of British prisons has been influenced greatly during the last seven years by the completion of the first part of Sean McConville's *History of English Prison Administration* (1981) and Michael Ignatieff's *Just Measure of Pain* (1978). The former writer, although he explained the characteristics of the differing methods of management of Victorian prisoners, did not dwell further upon reformatory theory and indeed, as far as evangelical spiritual reformism was concerned, felt that the pure reformatory objective was often less important to staff than the benefit of easier control which such an approach conferred upon them.

promises of God made clear by Christ, his new nature would be receptive to the learning of knowledge about God's created world and of the skills required to live properly within it.

This unmistakable address to prisoners as fellows in Christ undoubtedly exercised a profound influence upon the development of the prison system between 1840 and 1865 so that prisons designed according to the architectural requirements of the system were built in most parts of Britain. Indeed, formal separations at Pentonville, the model separate system prison, became the initial stage of containment firstly of those sentenced to transportation and subsequently to the penal servitude which replaced it as well as the characteristic discipline of many of the county and some of the borough prisons in which the great majority of prisoners were held. In addition, new administrative mechanisms such as the prison inspectorate established under the terms of the 1835 Prison Act were eventually dominated by evangelicals.

been a member of the influential Prison Discipline Society, and Whitworth Russell, whose experiences at the hands of groups of prisoners when chaplain at Millbank Penitentiary had left him with a fanatical dedication to the notion of separate confinement.

Within this system, of course, prison chaplains held a most important position and indeed for a time, despite the hesitation of the Home Secretary, the chaplain of Millbank was also its spiritual reformist set to work with their character and gained influence within the prison system the messages which they began to send to the outside world were by no means entirely reassuring. In the first place, just as Wilberforce had challenged his contemporaries with the shallowness of their ritual, almost pagan, Christianity and the lack of their truly Christlike love for their miserable brothers, an unmistakable criticism of the surrounding society arose from them.

Furthermore, a powerful indictment of the moral conditions which were believed to flourish within an entrepreneurial economy of increasing towns and concentrated masses of population was made by many of these established reformists as well as by writers who plainly supported them. In accord with general evangelical attitudes they believed that the new economic order was "changing the recipient of the moral relationships between the classes and that the poor were now being

Ignatieff, on the other hand, devoted a substantial part of his work to the actions of spiritual reformists and other groups (such as associationist psychological theorists) who apparently had a strong commitment to reformation of prisoners. Plainly he felt much distrust of these undertakings, arguing that they were an important part of a growing regulation of the poor and of political non-conformists, a significant element in the growth of Michel Foucault's "carceral city" in which the disobedient could justifiably, with a show of benevolence, be contained and subtly subjected to "institutions of repression, rejection, exclusion, marginalization".

concentrated in vile "rookeries" and submerged in a vice-creating environment in which foul sanitation, overcrowding, drunkenness, rapacious exploitation by slum property developers, all flourished.

The spiritual environmentalist approach therefore emphasized that the conditions in which crime flourished were both dangerous to the health of the entire society and morally intolerable evils within a Christian nation. The reformers cultivated a double role of criticism, hesitating neither to confront their human charges with sin and destiny in Christ nor the wider society with its general neglect and hardness of heart towards the poor.

To reformists the criminal class was not therefore a separate and distinct race or tribe peopled by a particular human type, but had come into existence as a result of social conditions, a class into which fell those who were overwhelmed by temptation to vice, sufferers in a society in which the old conservative relationships between superior and inferior had been split asunder. In part they appealed, as did evangelicals more generally, to a nostalgic vision of a pre-industrial society in which men were bound together in shared intimate social experience and in which sturdy and compassionate service flourished, an ideal of stewardship for which the rich must ultimately account to God.

The other major philosophical strand of Victorian prisoner reformation was the associationist psychology which can be traced at least as far as John Locke and which Bentham assumed as the basis of his Panopticon, an institution which was never in fact built but which was intended permanently to alter conduct. According to the associationist view, man's attitude and behaviour were influenced almost entirely by the impact of experience in childhood, that the individual desires to repeat pleasure-causing behaviour and to avoid its reverse, associating the act and the sensation so as to form an attitude.

Furthermore, repeated impact increased the strength of the attitude. Thus to associationists the problem of crime in part resulted from defective upbringing and inappropriate learning brought him to prison were pleasurable and good, and therefore the fear of the prison was to suppress the learned connections and to nullify the prisoner's opposites. Consequently

scribed the existence of human beings who not only failed to adapt to the progressive improvement of each generation but possessed organic, constitutional characteristics which were inherited.

Thus by the mid 1870s, before Cesare Lombroso's first Italian edition of *Criminal Man* (1876), there was in Britain a growing positivist tradition which emphasized the idea that the habitual criminal was a distinct separate human category. Even late nineteenth century associationists such as Alexander Bain were influenced by this development and Bain himself began to suggest that the repetitive offender possessed some fixed mental characteristics which prevented him from learning to control impulses and to defer immediate self-gratification in order to gain deeper - albeit later - pleasure. In general, a typical habitual criminal began to emerge in the literature during this period, uncontrolled, impulsive-driven, predatory, cranially underdeveloped, prowling the cities of Britain, spawning his own kind. Lombroso, with his detailed account of the criminal and less dangerous "criminaloid" as surviving human anachronisms, merely gave added force to the view that with such cases, a spiritual or associationist reformatory approach was mistaken.

By 1875 therefore the reformist position was theoretically weakened and more generally undermined by over a decade of scepticism among statesmen and public. Indeed, in 1863 the dedicated separatist inspector John Perry had recorded rough handling of the wards of a House of Lords Select Committee when he had tried to explain that the major penal purpose of prison was reformatory. Increasingly, spiritual reformists in particular found their contribution to debates treated with suspicion by a penal system in which the tendency was towards severe, rigorous deterrence.

Indeed, when local prisons were centralized under the management of the Prison Commission in 1877, the first chairman, Edmund Du Cane, had a marked interest in Bain's notion of habitual criminals as impulse-ridden moral defectives with "an incurable tendency towards crime" and in the mental positivism of David Maudsley. Du Cane and his contemporaries accepted that reformation of prisoners must have a place in prisons but the importance of that place was now much reduced. Thus the disappearance of the reformist ideal was a prelude to the growth of scientific positivism influenced them towards pessimism and caution in respect of reformation. It was not at all the case that prison officials suddenly became dedicated Lombrosians or social Darwinians, for plainly they did not, but rather that science played an important part in shaping an attitude that habitual criminals were unlikely to be successfully reformed and might well have a fixed mental weakness which was constitutionally based; and among prison officials the general growth of that attitude is unmistakable.

Spiritual reformists had thus lost the battle to scientists and disappointed sceptics but they had earlier exercised a substantial influence upon prisons and social attitudes to criminals. Ignatieff is right to remind us of the grievous suffering which could result in separation prisons, yet it needs also to be said that many prisoners expressed gratitude to governors and chaplains for the humanity and compassion which they had experienced in numerous letters proudly published by Joshua Jebb and written by them without hope of advantage, long after release. Undoubtedly today the idea of total institutional reform of prisoners is in marked decline and it seems clear that such an endeavour has never demonstrated overall success in achieving its objectives, being also to many social scientists and others an approach which in itself is wholly conceptually mistaken. However, it also ought to be remembered that chaplains such as John Clay and Joseph Kingsmill were unambiguous in their dedicated insistence that prisoners and other social outcasts were in the sight of God equal in worth to others and must be respected as such. To contemporary man who has known Dachau, the Gulag Archipelago, Makinde Barracks and "The Disappeared", recognition of that feature of their attitude towards those who were feared and unwanted by the state is perhaps particularly important.

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Same subject, different styles: what's in a name

Science, technology and society studies have most of the things a grown up specialty needs except a name everyone agrees on. The names of the various academic units show different emphases, reflecting the style of the research groups they support.

The three best known university groups all started in the late 1960s. The most straightforwardly named is the Science Policy Research Unit at Sussex University. Even here, though, much of the work has been concerned with technology, with the original director, Christopher Freeman, being an expert on the economics of industrial innovation and the currently fashionable theories of "long waves" in economic development. Other work at Sussex has included detailed analysis of the projections bandied about in the "limits to growth debate", research on new technology and employment, energy policy and latterly, science policy proper.

Many of the unit's concerns overlap with the London-based Technical Change Centre, a much newer establishment with no university base. Much

Sussex work has influenced policy-makers but this has been muted by the unit's penchant for criticizing orthodoxies beloved in Government departments, particularly the Department of Energy.

The second of the big three is the Department of Science and Technology Policy at Manchester University, a name finally agreed last year after long discussion of a replacement for the original, opaque, label - liberal studies in science. Although started by the economist Freddie Jevons, as the title of one well known Manchester work, *Wealth from Knowledge*, on a wide variety of topics. The new name appears to indicate ambitions to be more like SPRU, but the policy research on biotechnology, marine resources, cable systems and defence procurement, is still leavened by pure historical studies of, for example, genetics and political thought about science.

The third of the trio has no desire to ape SPRU. The Science Studies Unit at Edinburgh University is the centre for the history of science, technology and

director throughout, David Edge, the unit has developed a strong programme of work looking at the fine texture of choices in scientific research.

The Technology Policy Unit at Aston University in Birmingham used to be close behind these three, but has recently suffered ill-treatment from the university. Amalgamation with Management and Policy Sciences, now followed by loss of an MSc course in social aspects of science and technology are likely to reduce its standing.

Other groups of STS scholars are small and scattered on the whole. But they exchange curricula and details of research projects through the Science, Technology and Society Association. The STSA is a Context network funded by the Nuffield Foundation, and has links with international organizations like the European Association for the Study of Science and Technology (EASST) and the American Society for Social Studies of Science, commonly known as

Cracking the cultural code

Degree level courses in language studies in this country still have a secure and apparently conventional place within the "humanities" faculty of most universities and polytechnics; but there are good grounds for suggesting that this apparently well-established academic area has entered a period of conceptual crisis which may be just as serious, if not quite so dramatic, as that which now notoriously besets the neighbouring English departments. For the consensual view of "modern languages" as it is still often rather quaintly labelled, has been breaking down for some years now.

In higher education, the breakdown of the older pattern of values can be discerned in a range of symptoms very similar to those which afflict English as an established discipline: linguistics, the social sciences, "imported" continental philosophy produce new theories of culture and of national ideology which subversively question the predominance and naturalness of literature as a central discipline, demanding the deconstruction of academic subjects. The consequences are not simply polemics, but new experimental courses, a heterogeneity of course design, new patterns of study breaking away from the old model.

With language courses, the borrowed legitimization through literary study is rooted equally in notions of culture and nationality which were formulated in the last century. It is based on the humanistic assumption that the study of a nation's literature leads to a more profound understanding of the people who speak the language in which that literature is written. Literary study also served, of course, to give the learning of the contemporary language an acceptable level of academic prestige by conforming with the disciplinary practices of the noble precedents in the humanities, classics and English. With the questioning of the centrality of literature, language courses too have reached a stage of confusion, if not disciplinary crisis.

For more than 10 years now, the structural alliance of languages and literature which still dominates the discipline has been under concerted attack from a variety of different positions: the linguistic (demanding the theoretical and/or comparative study of language); the utilitarian (asserting the value of language as an accessory to business, law, engineering) and the socio-historical (arguing for the combination of language study with that of social and institutional structures). The new courses which have enacted these models (several of which lead a long way from the humanities faculty) have been introduced out of a variety of motives: in part, certainly, to present a clear alternative profile in a competitive market; more positively, in the attempt to win students back to language study in the schools by making available a range of different types of course.

New courses have tried to respond to the need of industry for graduates with language skills in registers other than the literary one, who combine a knowledge of a language with that of the country and its inhabitants, and who have an awareness of the workings of industry and the world of business. Sometimes again it was the teaching staff who wished to teach courses that took account of recent work in the human and social sciences which showed the increasing irrelevance of studies based on the traditional rigid barriers between disciplines, and demonstrated the need of interdisciplinary in response to an increasingly interdependent world.

The new direction recognizes advanced linguistic proficiency as the key to the structure of a course, clearly foregrounding language study rather than literary analysis, and binds this language study to the study of contemporary society. The new approach is emphatically multi or interdisciplinary, making a virtue out of the sometimes confusingly multi-referential quality of language itself. The definition of a national culture in the fullest sense is the academic goal.

There is, then, an increasing feeling that language courses which approach a culture almost exclusively through its literature are inadequate to modern needs. Literary study is of course in itself a valuable and necessary discipline; indeed some criticism of the traditional curriculum has come from within this discipline itself, questioning

Tony Chafer and Peter Findlay look at the future of language studies

whether literary structures and periods are best examined from within national blinkers, and suggesting that comparative or more theoretically sophisticated courses on literary discourse itself might offer more to the student. But although the study of literature might well exclude the study of language (or concentrate on reading skills alone), the conventional model for language degree courses remains that of the relatively exclusive and supposedly mutually supportive "lang and lit" combination. This is indisputably a conservative model, derived in essence from the ageing of study and research methods associated with the classics, and usually insisting on the preservation of an elitist definition of culture in the form of the particular national literary canon.

If the aim is the acquisition of advanced language skills, then the logic of this model is far from clear, and its consequences are often more than a little disturbing, for the relationship between the two ingredients in this curricular recipe has never been satisfactory. Language study has always included, at the very least in a token form, many skills quite unnecessary to the study of historical literature. Certainly literature can give the student reading practice, and offer sophisticated stylistic forms of the language for analysis and appreciation, but it is nevertheless a register which is of its nature inert and artificial.

Weaknesses of the traditional model

In the most traditional courses, literature study will be supported, logically enough, by language work such as prose and translations which itself relates to a restricted area of language use and which for the most part uses texts in the literary register. However, this pattern of study, in a perverse way actually more consistent, is now generally being replaced by a more schizophrenic practice in which language work uses more "worldly" texts from contemporary newspapers and magazines, and places some emphasis on oral communicative skills. But within the combination with literature, this more progressive policy leads to problems of its own. A conceptual contradiction presents itself in the linguistic gap between the artificial registers of the literary class and the more denotative and colloquial texts used in language work, which are studied by students often lacking the social and cultural awareness of the foreign area necessary to their proper understanding. Very often the student may feel torn between two disciplinary lines of emphasis which are no longer naturally supportive, but each ten to pose unanswered questions about the value of the other. Spoken language work, the literary text requires the reconstruction of an imagined oral, in terms of literary study alone, the year spent in the foreign country is without real preparation, logic or motivation.

The irony of all this is that the kind of disciplinary specialization on which the traditional model is based is not only inadequate to a proper understanding of the contemporary foreign culture and its problems, it is also increasingly inadequate to an understanding of many modern writers and their work; supposedly the forte of the traditional department. Let us take as an example the work of Sartre, widely studied in French literature departments. Or rather, one aspect of his work is studied: the plays, and novels (and possibly *L'Existentialisme est un verbe*). But this is quite extraordinary if one considers the Sartre always considered himself above all as a philosopher. It is hardly doing justice to Sartre or to French cultural life in general to label him simply as a literary existentialist. This is a narrow perspective; to understand Sartre's true significance requires more than simple literary approaches. Yet his major philosophical works, *L'Être et le Néant* and *Critique de la raison dialectique* go virtually, if not actually, unmentioned in traditional departments.

The manner in which Sartre is studied within the traditional model can serve, then, to illustrate two more serious weaknesses of language courses that concentrate on literature study. First, little sense can usually be given of the true scope, importance and originality of a writer's work. Many elements of Sartre's later political views are indeed already contained, for example, in his early novel, *La Nausée*; there is a sense in which the latter cannot be fully understood without the former, but nor can the former be properly appreciated without a knowledge of the earlier literary form. Second, the concentration on the text alone leads to a false appreciation of Sartre's significance in recent French history; to see him only, or primarily, as a writer is to ignore completely his central role throughout the recent period as a focus for intellectual activity and as a rallying-point for extra-parliamentary dissent.

The traditional "lang-lit" model is afflicted, then, by a number of unavoidable tensions and contradictions: between language read and language spoken; between fictional worlds and the real foreign culture; between the text as mediated by the syllabus and the text in its cultural context. Whether or not these contradictions are perceived and acted upon depends to a great extent upon extra-curricular factors: relative institutional prestige certainly appears to be a major determinant of inertia.

The starting point of the new developments in language courses is to see language as a social phenomenon and society as a complex structure. In general, the theoretical bases for these courses are ones which point towards a multi-disciplinary or inter-disciplinary approach to the analysis of a language area. For example, Marxist cultural theory, with a long tradition of broad social analysis developed out of the modification of the base/superstructure concept, has always implied a disciplinary interdependence. For this model allows the delineation of patterns to cause and effect within a social totality at any given historical moment, and stresses the interplay of a variety of social forces both material and cultural. For the Marxist, language, philosophy, art and literature (all superstructural phenomena) cannot be studied adequately without some reference to their historical and social formation, without the context of the economic conditions of production within which they are realized.

However, it is not only the Marxists who advocate an inter-disciplinary approach; the artificiality of the boundaries between many disciplines is today in practice accepted by many new types of course, such as media studies and cultural studies, which may equally base the rationale for their approach upon the arguments of their structuralist tradition. Structuralism argues that all human activity conforms to a specific pattern or "structure" which can only be understood with reference to and in contrast with other parts of the structure. Society therefore obeys much the same laws as language, it is a series of "codes" which can only be deciphered by means of an analysis which reveals the hidden structures underlying the seen performance. The various discourses within a society - literature, art, advertising, rituals, education, political and economic life are all, as Barthes has elegantly demonstrated, readable as coded behaviour. The total social structure of a nation transforms and predetermines each particular area of social articulation, while modifications of the particular elements at the same time lead to a transformation of the whole. Any study of human activity (and language is the essence of human activity) must then be interdisciplinary, as no single aspect of that activity can be accorded *a priori* a privileged place.

In the old model, language study itself is usually viewed as a skill, an academic discipline - the respectability of the course is provided by the literary component. The new courses have broken with this pattern in a number of different ways, not all of them entirely persuasive in academic terms. They are all, however, characterized by a move from the single discipline to the multi-disciplinary or inter-disciplinary approach. The nature and aims of the variety of language courses developed the last decade or so are markedly heterogeneous; there is certainly no simple divide.



Jean-Paul Sartre: to understand his time significance requires more than simple literary approaches.

First, there are the avowedly vocational courses. These courses are pragmatic and functional in their response to the employment market. A second distinct group of courses are the European studies type. All such courses are likely to involve a considerable amount of service teaching either from linguists or from specialists in the other disciplines, depending on the emphasis of the course, but in general language study has a purely complementary role. Finally there are the integrated language and area studies programmes, such as those pioneered at Portsmouth Polytechnic and the universities of Aston and Bradford. It is courses like these, we believe, which have begun to produce the practical model and the theoretical basis for a form of language study which firmly challenges the older model not simply at a practical vocational level, but in conceptual terms.

It is a key tenet of area studies that no disciplinary perspective is rejected *a priori* from a course programme. In these problem-centred courses, disciplines are applied selectively, rather than defended rigorously, each to be a prism through which to study some part of the reality of a contemporary national reality and its language. There should not be a restriction to the social sciences - geography, philosophy, fine art and music, even literature (now reincorporated into a broader analytical structure) can all have a part to play. But not all are of equal importance. Some disciplines are clearly central to an understanding of a country and its language, others may be less essential. Alongside the language study elements (which will often centre upon current affairs, linguistics, the social sciences and history are probably indispensable. The influence of regional, climatic and geographical factors is an often neglected determinant of a country's development and requires some attention. Philosophy, or rather the history of ideas, by studying the ways in which a nation has conceptualized the problems and situations encountered in its history, can give valuable insights into the culture and language of a country. The cultural and imaginative life of a people is generally an important aspect of area studies, and here literature and the arts in general must have a place, especially in their more popular contemporary forms - film, popular fiction and music - and the analysis of such cultural products will help to a proper understanding of the habits of thought of a nation, or of a social class. In the final count, of course, the exact balance of disciplines must depend on such factors as the availability of resources, both human and financial. In the present climate, it is difficult to imagine a field of language studies, and it seems likely that some years hence the various types of course, new and old, will continue to co-exist.

Breaking the literary pattern

The aim of an integrated language and area studies programme is to develop genuinely interdisciplinary approaches to the area in question, but with language study as its focal point. One could perhaps rather provocatively exemplify this aim by suggesting that, at the end of a four year course, the student should have attained the broad level of understanding of the history, habits of thought, institutional, economic and cultural life of a country which will allow him or her to read and understand and discuss a serious daily newspaper of that country with one of its nationals. Now this is not a modest goal at all; not only does it assume a high degree of linguistic proficiency in a wide variety of conventional registers, it also requires the "situating" of the text within the wider structure of the mass media of the country in question, and then in the context of the whole social, political and cultural life of that country at that moment in time.

The language and area studies course works through language study, linguistic analysis and an interdisciplinary approach to realize the aim of enabling the student to move confidently through the many registers of language which, in turn, provide the basis for a broad understanding of the contemporary world of the foreign country. The combining and integration of language study with study of the social and cultural totality is a recognition of the fact that language cannot be learnt separately from experience and understanding.

The period spend studying or working in the foreign country is in many ways the key experience - and sometimes also the acid test - of any language course: it presents the student, potentially, with the challenge to both participate in and observe the foreign culture under study. Lack of confidence, inability to integrate prop-

erly, failures to understand or communicate properly during this period can all seriously undermine the student's sense of the meaningfulness of his or her studies.

The course in this country must offer preparation, both general and specific, to ward off the inevitable "culture shock" of immersion in the foreign society; and that means understanding something about how it works. The fullest possible profit must be gained from the foreign situation while the student is there: a specific programme of study should be arranged in advance, the foreign institution; he or she must be visited and interviewed on his work by his tutors, write regular reports back to the home institution, projects may be completed on aspects of local affairs, or research carried out for a dissertation written in the language. Or the student may be placed abroad in a firm, and asked to produce a full assessment report of the experience on return to the home institution. Most important is that whatever is done in the foreign country during the period spent abroad, it should give out and in turn contribute to the specific courses of study followed at home. All of this can be achieved, but only if the period abroad is accorded its proper, crucial place in the structure of the course.

It is a key tenet of area studies that no disciplinary perspective is rejected *a priori* from a course programme. In these problem-centred courses, disciplines are applied selectively, rather than defended rigorously, each to be a prism through which to study some part of the reality of a contemporary national reality and its language. There should not be a restriction to the social sciences - geography, philosophy, fine art and music, even literature (now reincorporated into a broader analytical structure) can all have a part to play. But not all are of equal importance. Some disciplines are clearly central to an understanding of a country and its language, others may be less essential. Alongside the language study elements (which will often centre upon current affairs, linguistics, the social sciences and history are probably indispensable. The influence of regional, climatic and geographical factors is an often neglected determinant of a country's development and requires some attention. Philosophy, or rather the history of ideas, by studying the ways in which a nation has conceptualized the problems and situations encountered in its history, can give valuable insights into the culture and language of a country. The cultural and imaginative life of a people is generally an important aspect of area studies, and here literature and the arts in general must have a place, especially in their more popular contemporary forms - film, popular fiction and music - and the analysis of such cultural products will help to a proper understanding of the habits of thought of a nation, or of a social class. In the final count, of course, the exact balance of disciplines must depend on such factors as the availability of resources, both human and financial. In the present climate, it is difficult to imagine a field of language studies, and it seems likely that some years hence the various types of course, new and old, will continue to co-exist.

There is a less profound reason why Hobbes's political philosophy must be set in time, one which Howard Warrender might more readily concede. The three great political works, the *Elements of Law*, *De Cive*, and *Leviathan*, were all generated in response to political events. This does not limit their role in the history of ideas, indeed it explains why we have so often an elaboration to study. As Hobbes relates, he had not intended to contemplate human society until he had completed his great study of nature and man. But the developing political crisis in England interrupted

this work. It turned his head from infatigable mathematics and led him not only to formulate his "political science" but to revise it twice over. For Hobbes had a most remarkable view of the ability of the philosopher to influence political affairs and an equally extraordinary notion of his own role in them. This alone accounts for the great burst of intellectual activity that dominated his life between the calling of the Long Parliament and the establishment of the Protectorate.

Hobbes's first published work, at the age of forty, was a translation of Thucydides that he brought forth as a counter-argument to the petition of right in 1629. The obscurity of his point blunted its impact but it did not dull his public conscience. In the crisis year of 1640, Hobbes again set pen to paper, this time to influence his Cavalier patrons and their parliamentary allies to hold firm in support of monarchy. The result was the *Elements of Law* which, Hobbes tells us, circulated in manuscript after the dissolution of the Short Parliament. This was his initial attempt to reason from first principles to a code of political conduct which stressed active obedience to established authority. Though the *Elements of Law* was not published, Hobbes was so convinced of its potency, of the irresistible power of his arguments, that he began to fear for his life. When the Long Parliament was summoned in the autumn, Hobbes, not for the last time, indulged his persecution complex. He chose exile on the continent rather than the fate that he imagined he was about to suffer.

"The first of all that fled," Hobbes settled in France among the intellectual lights who had befriended him in the 1630s. He began work immediately on a second political treatise. This was *De Cive*, a reformulation and elaboration of *Elements of Law*, planned originally to be the capstone of his philosophical system and which became instead its foundation. Again Hobbes was certain of his ability to prove by rational inference and logic an argument that men must yield to civil authority in order to ensure peace.

In 1642 *De Cive* was published anonymously in a small Latin edition. It enhanced his European reputation, even winning grudging compliments from Descartes, but did little to ameliorate the situation in his homeland. As Hobbes was correcting his proofs, King and Parliament were floundering into war. Soon he was joined in France by former friends and patrons and Hobbes again became part of an English expatriate community. He remained on the fringes of the exiled court, securing a temporary post as mathematics tutor to the Prince of Wales, the future Charles II. This must have been a pedagogic experience as fruitless as his efforts to dissuade his countrymen from war. In later life, Charles's principal mathematical ambition was to demonstrate that the sum of negative numbers could be zero, a theorem he proved temporarily when he stopped the executioner in 1672.

Contact with the intellectual lights enhanced Hobbes's conviction that he could help end the civil wars by his writings. Two more small editions of *De Cive* were

authorized in 1647, the original argument fortified with annotations, and copies from these printings certainly found their way to England. But this was not enough. Through illness and exhaustion Hobbes worked to provide a fuller statement of the rudiments of his political philosophy. He translated *De Cive* into English while simultaneously at work on a further elaboration, completed in 1650 as *Leviathan*. As Hobbes's thought matured, his public presence grew. The *Elements of Law* had been circulated privately; the first edition of *De Cive* was published anonymously; and while the 1647 edition was ascribed to Hobbes, he cannily had his portrait removed from these copies bound for England. By the time that he had completed *Leviathan* he was ready to avow his ideas, and his exile, and submit to the *de facto* authority that was now able to secure peace in England. He returned home in 1651.

Hobbes is an acquired taste and many of those who have it prefer *De Cive*. It has more body and is better coloured than *Elements of Law*; yet it is less pungent than *Leviathan*. As it is an expression of Hobbes's political philosophy it is not complete; both the concept of authorization and important components of the theory of contracts are missing. But the statement of the laws of nature and of the relationship between liberty and

dominion are so clear that *De Cive* is an excellent starting place for study of Hobbes. Until now, however, it has not been readily accessible. Molesworth's indispensable nineteenth-century edition of Hobbes's complete works and S. P. Lamprecht's postwar English version are out of print. Thus the present edition is more than welcome. It both brings the text back into circulation and it makes all recourse to earlier editions superfluous.

As one would expect from the Clarendon Press, this is a lush production. *De Cive* comprises volumes II and III of *The Philosophical Works of Thomas Hobbes*, a series which may bring us *Elements of Law* and *Leviathan* in time for the quarter-century of his birth in 1588. Volume II is the Latin text, collated from a manuscript copy preserved at Clatsworth and the first three Latin editions. Volume III contains the English text published in 1651 from a translation most probably made by the author. With Hobbes so directly involved in the publication of *De Cive*, and as his correspondence shows, so assiduous in overseeing the printing, Warrender has adopted what he describes as a minimalist approach to the editing. Variations in the four Latin texts are clearly shown in footnotes, but the presented text is unburdened by bracketed intrusions. This makes the work ideal for both students and scholars.

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though, as Pears points out, misleadingly, as weakness of will. The translation is misleading because not all defects of reason in relation to action constitute weaknesses. Indeed, one of Pears's preoccupations is with what he calls "last ditch akrasia" (a term, incidentally, which is used many times before it is explained), where an individual can follow rational considerations up to the last moment and then intentionally do the opposite without this involving reassessment of the situation. If such a phenomenon exists, it is certainly not a weakness. Pears sees a certain parallelism between these two classes of phenomena - the one being concerned with belief, the other with action - although there are differences too, as well as overlaps, as when techniques of self-deception are used to reinforce akrasia. Pears does ample justice to the complexities of these phenomena, although the categorization of them simply in terms of belief and action leads in my opinion to a certain neglect of the contexts in which deception and

self-deception may occur, particularly the context of social and personal relationships. One interesting feature of the discussion is Pears's willingness to confront philosophical arguments with psychological findings. As he rightly points out, many philosophers' treatment of these issues lead to the conclusion that self-deception and akrasia (or at least certain forms of these) are not possible - a conclusion which is reached *a priori* on the basis of an examination of the concepts involved. Psychologists, on the other hand, are more than ready to point out that the phenomena in question just do occur. Although Pears writes as a philosopher he tends to side with the psychologists on this issue. He seems to me right, although I suggest that a "robust sense of reality" is as relevant as psychological findings when the question of the reality of self-deception and akrasia arises.

At the same time, Pears generally has certain philosophers in mind in his criticisms: for example, Donald Davidson and his rejection of "last ditch akrasia", and Richard Hare's apparent denial of akrasia altogether, the first because the final action is supposed to affect our interpretation of the preceding evaluation, the second because the identification of the evaluation is supposed to determine what action can take place in its light. Pears's discussion of these issues is thorough and convincing. The treatment of Freud is less satisfactory, although he correctly pinpoints what is at stake in Sartre's objections to Freud. It is less satisfactory because he concerns himself with only one stage in the development of Freud's views - that in which Freud thinks in terms of the division of the psyche into sub-systems. The comparison of this with a Davidsonian distinction between different systems on a functional basis is not terribly illuminating. After all, one of the most notable features of self-deception is that it may involve techniques, as indeed may some varieties of akrasia. That notion, which Freud sometimes recognized, is not illuminating by reference to different systems within the psyche. Self-deception has, after all, to be self-deception.

Still there is in Pears's discussions an abundance of material for those interested. They will, however, need determination to get to grips with it. Pears has never been a easy writer to follow, and this book is no exception to the rule. In reading it one too often realizes that one has understood nothing of what has been going on in the past few sentences - even if each sentence by itself seems intelligible. Pears adds summaries to each chapter, but they do not really help. I do not think that the failure to follow the argument is a case of motivated irrationality - at least I hope not. The writing just is difficult and may, I fear, be an obstacle even for the enthusiast, for the subject-matter.

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Defects of reason

Motivated Irrationality
by David Pears
Clarendon Press: Oxford University Press, £14.95
ISBN 0 19 824662 5

David Pears has brought together in this book material on which he has been working for some time, concerned with "the usurpation of reason's functions by wishes". He rightly points out that the subject has some interest for its own sake, and not because of any light that it may shed on the normal processes of reason.

The two main phenomena - wish which he is concerned with self-deception and what Aristotle called akrasia - a term which is usually translated,

though, as Pears points out, misleadingly, as weakness of will. The translation is misleading because not all defects of reason in relation to action constitute weaknesses. Indeed, one of Pears's preoccupations is with what he calls "last ditch akrasia" (a term, incidentally, which is used many times before it is explained), where an individual can follow rational considerations up to the last moment and then intentionally do the opposite without this involving reassessment of the situation. If such a phenomenon exists, it is certainly not a weakness. Pears sees a certain parallelism between these two classes of phenomena - the one being concerned with belief, the other with action - although there are differences too, as well as overlaps, as when techniques of self-deception are used to reinforce akrasia. Pears does ample justice to the complexities of these phenomena, although the categorization of them simply in terms of belief and action leads in my opinion to a certain neglect of the contexts in which deception and

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So, too, do the textual annotations which the editor provides. Warrender has created a unified system for locating passages in *Elements of Law*, *De Cive*, and *Leviathan*. In *De Cive* he has identified those places in the other two works where Hobbes discusses a similar point. This allows for rapid comparisons and enables the reader easily to study the development of Hobbes's thought. Moreover, as so much Hobbes scholarship is based upon the Molesworth edition, Warrender provides a conversion table between his edition and Molesworth's.

The second volume begins with a sparse introduction to *De Cive*. Though the controversy surrounding Hobbes's thought is as vigorous as ever, and although Warrender is still at its centre, here he remains aloof. The introduction provides a factual account of the composition, publication, and reception of *De Cive*, with most of the attention given to the difficulties surrounding the various textual questions. As an appendix, there is a translation of a series of letters, to and from Hobbes, which have a direct bearing on the Latin publications of the 1640s. From these and from his textual comparisons, Warrender is able to dispel the confusion which has always surrounded the Amsterdam editions of 1647. He demonstrates that the so-called second edition of 1647 was simply a reprinting of the first edition with the title and second leaf removed to excise the portrait and commemorative verses which Hobbes found offensive.

The third volume, the English edition, is meant to serve as a companion to the second. It's introduction is entirely concerned with textual and publication matters. Warrender follows John Aubrey (and most other Hobbes commentators) in ascribing the translation to Hobbes himself. But he prints, as an appendix, the problematic preface found in some copies of one "C.C.", who purports to be the translator. The volume ends with an index to both the English and the Latin texts, an editorial decision which will prove catastrophic for library users.

Indeed, if one has a criticism to advance of so lavish a production, and it can only be a whisper to the shout of praise that Clarendon Press deserves for undertaking this project, it must be of the half-hearted decision to produce the volumes separately. If they are to be used together, as Warrender suggests that they should, then they could have made one substantial tome rather than two elegant ones. If there is a separate market for the English version, then it should have been produced with a full introduction and its own index. Scholars who find that students have removed the Latin version to crib from the introduction and students who find the scholars have borrowed the English version to ransack the index will both have an emotive understanding of Hobbes's view of man in the state of nature but will be deprived of the benefits of his penetrating philosophy.

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BOOKS

Beauty and truth

The Odes of John Keats
by Helen Vendler
Harvard University Press, £15.70
ISBN 0 674 63075 0

Professor Vendler's impressive book, despite some oddities, contains some of the best criticism of Keats's poetry which has yet appeared. She builds on the work of previous critics, but she has something original to say on each of the six odes. She uses several different critical strategies, relating the odes to each other and to the development of Keats's ideas. She is convincing on structural questions and on the poet's use of his own previous verse and that of his forerunners.

She points out that *Indolence* is unique in "being a second-person address to the poet's own self", whereas in the other odes, the soul-goddess, the Nightingale, the Urn or Autumn are the objects of address. It may be suggested that when he wrote *Indolence* Keats was exhausted not merely by nursing the dying Tom, but also by the amount of his writing (including *Hyperion* and *The Eve of St Agnes*) and by the rapid maturing of his thought, apparent in the journal letter to George and Georgiana. He needed a breathing-space: the *Indolence* was a wise passiveness.

Professor Vendler surprisingly declares that the *Psyche* ode reverses Keats's cry, "O for a life of sensations rather than of thoughts!" He defines art "as the purposeful imaginative and conceptualizing activity of the artist... It is art without artifact." This is paradoxical in view of the "luxuriant eroticism" embodied in the poem: *Psyche* awaiting her lover is a wish-fulfilment of sexual union as obvious as the seduction of *Madeline* in *The Eve of St Agnes*. In *Indolence* Keats had repudiated love and poetry; now he accepts his vocation as *Psyche*'s priest.

Ah, verily...

E. M. Forster: our permanent contemporary
by P. J. M. Scott
Vision Press, £14.95
ISBN 0 85478 255 9

When Dr Scott went up to Cambridge as an undergraduate, he lost no time in thrusting himself upon the aged Forster, and thereafter seems to have badgered him till his dying day with various searching questions.

One evening I was sitting briefly with him at the pre-dinner hour and said, "Mr. Forster, do you think the human race will survive?"
FORSTER: No. Do you?
SELF: Yes.
FORSTER: Why?
SELF: I don't know (Shuffling a bit, embarrassed at the method not the content of my argument). I just feel it will.

Understandably, embarrassment about the content of the "argument" is expressly disclaimed, for Dr Scott fancies himself as a bit of a philosopher – and indeed a thinker (and teacher) in most other fields too. One of the attractions of this work is that it offers the reader authoritative opinions not only about Forster's style, ideas, and way of life, but also about almost everything else: British workers, the economy, morality, religion, materialism, imperialism, colonialism, the Africans, the Chinese... You name your problem, he has the answer – or an answer.

Stylistically, too, the book is exceptional. The text is enlivened with *nays and ahs, verities and misprisions, averrings and nowises*; it rings throughout with rhetorical questions; it dazzles us with orthographical niceties (Koran with a *q*, Tibet with an *h*). And it toys with normal syntax: not "stitch it as a tale together", not "I admit", but "admit!", not "each lives in a tower, deaf to others" but "each live deafly in a walled tower...".

Is it all a spoof? Certainly it is often very funny; as, for instance, when Forster is properly rebuked for "guff" in similar prose; or when, failing to convince Forster that his own (and other critics') view of his novels was wrong, Dr Scott writes, "He was not very budgetable in *his* life..." – and goes off to attempt to lodge him with a long letter; or again when, not content with the common idiom of swallowing a camel but straining at a gnat, he writes "Having chopped up the camel..." thus destroying his own point. But is it quite consistent enough for its literary romantic poof?

Are they funny?

The Comedies of Corneille
by G. J. Mallinson
Manchester University Press, £25.00
ISBN 0 7190 0922 8

Of the three great dramatists of seventeenth-century France, Corneille is probably the one whose reputation stands lowest. Not long after his death, Boileau claimed that only eight or nine of his thirty-two plays survived, and whether the recent efforts of critics and scholars to rehabilitate him have had much influence on the general public is doubtful. The comedies studied in this volume constitute a somewhat neglected quarter of his output.

Dr Mallinson examines Corneille's eight comedies in relation to the works of his contemporaries, analyses them subtly and perceptively, and shows their originality and wit. Corneille, he argues, uses stock themes and situations, but in an original way. He depicts characters who are unsuited to their situations, whose speeches are



E. M. Forster

often inappropriate, above all who often play a part which may not correspond to their real nature or feelings. For Dr Mallinson, the discrepancy between words and feelings or role and face, make the first five plays indubitably comic. In *L'Illusion comique*, seen as central in Corneille's work; the playing of parts become unequal to the demands made on them. *Dorante, le filar*, the actor, "the supreme comic hero", meets all demands by flights of fancy, the blend of fact and fiction.

Probably few readers will disagree with Mallinson's admiration for these two plays or his low opinion of *La Suite du Menteur*, but will he convince his readers of the comic nature of the early plays? He cannot equip them with his own familiarity with the works of Corneille's contemporaries. He may show that Corneille's early plays are better than other works of the time, or that his audiences would have found some things comic, but this does not make them amusing now. *Amarante* at the end of *La Suivante* may have appeared comic because she is disappointed in love, attributes her disappointment to her poverty, and curses her mistress's father and his young

Truly heroic

F. Scott Fitzgerald: a biography
by André Le Vot
translated by William Byron
Allen Lane, £14.95
ISBN 0 7139 1634 6

Fitzgerald is a pure gift to a biographer. Throughout his trips between France, Maryland and California, and despite his alcoholism and his wife Zelda's nervous breakdown, every press clipping, interview, book review and letter was carefully saved. Photographs were labelled and mounted in albums. Words, names, phrases, fragments of popular song, lists of troubles (from "heart burn" to "depression and melancholia") were jotted down, typed by his secretaries, and filed. The *Notesbooks*, when they were published, were by Matthew J. Bruccoli in 1978, contained over two thousand entries. The Fitzgerald papers, donated by his daughter to Princeton University Library in 1950, filled nearly sixty boxes. Housed in the same library which holds the papers of Woodrow Wilson, they are said to be far more intensively used.

When things went badly for Fitzgerald he was no less devoted to self-analysis. He may have attempted suicide when a devastatingly unflattering interview in the *New York Post* in 1936 presented him as a drunk and a forgotten has-been, but he had, with painful honesty, reached similar

conclusions in a series of autobiographical essays from the mid-1920s. Which Edmund Wilson collected in *The Crack Up* in 1945. The memoir for long stretches after 1930, as Fitzgerald's relationship with his wife deteriorated, is a wholly remarkable record of a man who was admitted to a psychiatric clinic and continued during his long illness to write. Every symptom of his lives together was submitted to minute and wounding examination.

No such documents exist for earlier American writers. It is as though Fitzgerald determined to become a secret collaborator with his future biographers. There is little sign that he sought to prefigure his future biographers, on the well-founded belief that the truth contains sufficient dignity and heroism to be its own justification.

Professor Le Vot of the Sorbonne's Fitzgerald's fourth biographer. Only one, Andrew Turnbull, knew Fitzgerald personally. Le Vot may be the last biographer of Fitzgerald even to have seen a substantial proportion of the places where Scott and Zelda lived, and to have talked to a few of the surviving friends (both buildings and friends seem to be disappearing at an alarming rate). But, preferring to rely upon confirmed sources rather than uncorroborated recollection, he has not found many "new" facts. In some respects he has not availed himself of the full range of material recently made available. Le Vot's book feels though it was substantially completed eight or ten years ago. Neither Scott nor Fitzgerald's biography of Maxwell Perkins or Matthew Bruccoli's massive biography of Fitzgerald (1982) are mentioned. Le Vot's account of the relationship between Fitzgerald and Hemingway makes no reference to Bruccoli's *Lost & Ernest* (1978), nor does he use Carlos Baker's edition of the letters of Hemingway (1981).

Yet of all the biographies it is Le Vot's which reflects the most sympathetic insight into Fitzgerald's imagination. His book is not swamped by facts, as sometimes Bruccoli's is; and Le Vot's appreciation of Fitzgerald's novels is incomparably more sophisticated and interesting than anything in the previous biographies. He has a wonderfully sure feel for American institutions and places (his pages on the ethos at Princeton are superb). As one would expect, when Le Vot writes of the expatriate community in Paris he is on home territory and gives us the best brief account of the geography of expatriation. Fitzgerald emerges from Le Vot's book, as he did from Bruccoli's, as a truly heroic figure, the sort of man who, when his wife was insane and his career ruined, could write to H. L. Menckens: "having once found that intensity of art, nothing else that can happen in life can ever again seem as important as the creative process."

Decade of activism

Terrorists and Social Democrats: the Russian revolutionary movement under Alexander III
by Norman M. Naimark
Harvard University Press, £21.25
ISBN 0 674 87464 1

Sometimes a classic book can deter others on its subject. Such is the case with Franco Venturi's *Roots of Revolution* published in 1952. Subsequent work on the Russian revolutionary movement has picked its way among the furrows he ploughed and we have had many individual biographies and of individual organizations, and works on particular decades. Professor Naimark's book falls into the last category.

It has usually been assumed that the 1880s present little interest from the point of view of revolutionary activity, merely a decay of the basically populist 1870s and a preparation for the basically Marxist 1890s. Professor Naimark contends that this was a much more significant decade in the revolutionary movement than has hitherto been

thought. *Terrorists and Social Democrats* is founded on research in the tsarist police files of the Central State Historical Archive. The author examines the cases made against over 2,000 revolutionary groups, and his book reflects, in its overwhelming interest in the growth and proliferation of these organizations, the interests of the tsarist police themselves.

Professor Naimark wants to revise the conventional view of both the Marxist and narodovolsky revolutionary groups. The former, he claims, were relatively little influenced by Plekhanov, the so-called "father of Russian Marxism", while the latter were not, as has previously been assumed, in decline but continued to attract recruits. What is more, he asserts, many of those groups combined elements selected from both Marxist and narodovolsky (both so far propagandist narodovolsky hybrids) thought to be in decline. In fact, he claims, it was the development of revolutionary organization rather than of revolutionary ideologies which epitomized this decade when so many leading theorists were in exile.

Naimark lays great emphasis on the nervousness which many government officials felt about the risk of terrorist attack, when in fact by the 1880s the tsarist government was extremely efficient at catching revolutionaries. Indeed, this cannot be overemphasized.

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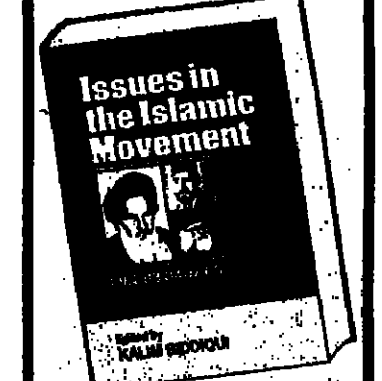
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BOOKS

Policy snapshots

UK Science Policy: a critical review of policies for publicly funded research
edited by Maurice Goldsmith
Longman, £16.95
ISBN 0 582 90256 8

What Bismarck said of politics will serve also for science policy: it is not an exact science. Indeed, it is remarkable that two words, science and policy, so different in the images they suggest should have become so casually connected, the one, in principle at least, the epitome of the rational, the other the envelope curve of the expedient. Here is another work which demonstrates that, as the chemist would say, science policy is a mixture rather than a compound, a little bit of this, a little bit of that, without unity, or coherence, or consistent rationale. Furthermore, over the years the very word "science" has become eroded by misuse, now signifying J. S. Huxley's "common sense at its best", now meaning "science and technology", now standing for "research and development", so that a book with the title *Science Policy* needs to be read before one can know its scope.

Preceded by an introduction by Sir Hermann Bondi, the core of this volume consists of nine critical essays: five correspond to British government departments - agriculture, defence, energy, health services and transport; three relate broadly to the Department of Education and Science - big science, higher education and the social sciences; and the odd one out is biotechnology. Information technology has been deliberately omitted. In the second part, comparative studies are offered of France and the Netherlands.

The first question that is likely to be asked is what is the logical justification for including just two countries, and specifically, these two countries? International comparison is always tricky even when several authors write at approximately the same length about nominally the same topic, but it is evidently going to be more limited still when one country gets 188 pages and the other two get only 15 and 27 respectively. In short, it might have been better had the book been confined to Britain, or alternatively had it gone to the other pole and been fully comparative. Somewhat more is involved here than the common phenomenon of a reviewer arguing about the book which ought to have been written rather than concentrating on the one which has been written. In the first place the editor is clearly uncomfortable (information technology); and in the second the absence of a comprehensive chapter on manufacturing industry is a gap of grave proportions. After all, here is a country in an advanced state of economic decline (that a new word, "deindustrialization", has been invented to describe it. Readers might reasonably expect to know what science policy is doing about this, or in more concrete terms, on what in the science policy field is the Department of Trade and Industry spending its money, and is it spending it well, and is it spending enough? That this area does not get its own chapter is perhaps symbolic - general manufacturing industry is seen as having so much less glamour in contemporary Britain than do fields like energy and defence that it is easily overlooked, yet its importance is fundamental.

Turning from omission to commission, all the essays offer something of interest and some are not equally comprehensive or definitive. Beginning with agriculture, here even by institutional standards is a highly successful British industry. How striking then to have Professor C. W. R. Spedding highlight differences of view about British agricultural policy and the associated £120m per annum of public research and development. He has some highly pertinent things to say about the need to improve structures and accountability, and also about the financial support implications of self-sufficiency and the impact of this policy for the third world. By contrast with agricultural research and de-

velopment where the benefits, if not precisely defined, nevertheless seem clear, "big science" has come under repeated attack in a Britain losing its self-confidence. Here Dr E. Walker Kellermann offers a vigorous defence, ending his article with a return of an old idea, the suggestion that there should be a Cabinet Minister for research. Since Dr Kellermann was a member of the Association of Scientific Workers editorial committee responsible for *Science and the Nation* in 1947, when the same idea surfaced, this is not so surprising.

Harry Rothman writes on British biotechnology policy but generalizes his scepticism about policy in this sector into an overall indictment of government policy towards new technology and industry, namely that government has "no means of making industry invest in new technology or in Britain". Rothman therefore concludes that while a few companies will make profits from biotechnology, as things stand this sector will not provide a new drive for industrial recovery, and that neither will any other new technology investment "which, when necessary, can control and direct industrial and financial capital". Rothman recognizes of course that what he wants is unattainable in the present political climate and, presumably because of this, he offers little in the way of detail as to how his preferred approach would work.

Philip Gummert provides an invaluable survey of defence research policy, treating very carefully in respect of the questions which really matter. Thus he ends with the statement that the place of defence research policy within national policy for science and technology is beyond the scope of his remit. Given the ground he is required to cover, he does have a point. However, no matter how frequently this issue has been discussed previously, it is obviously central to a book of this kind.

A sense of timing

Man Suddenly Sees to the Edge of the Universe
by Richard Casement
The Economist, £4.95
ISBN 0 85058 063 3

Some time ago *The Economist* carried on its front cover a picture of a gaily coloured monkey - designed to draw attention to an article on animal colouration, a subject remote from the paper's main concerns. Although this might at first sight seem odd, *The Economist's* science and technology section, where the article appeared, has never confined itself to the kind of applied science obviously calculated to appeal to its readership. It does cover this well, but it also ranges over the philosophy, politics and sociology of science. Above all it frequently devotes large amounts of space to topics with no practical implications whatsoever, like animal colouration, black holes in space, and man's ancestry. The approach clearly reflects the intellectual curiosity that is the main driving force of science and is probably the main reason for the section's outstanding success since it was launched in the 1970s.

The paper's science and technology section was the creation of Richard Casement. He proposed it (mainly, his editor recounts, because he had a stock of unused pieces for which he was unable to find a home elsewhere in the paper), launched it, and ran it until his death, at the tragically early age of 40, in 1982. This book, which has been edited by two of Casement's colleagues, presents a selection of his work for the paper, pieces on related topics being run together for the sake of better organization. The book is, however, a lot more cohesive than that formula might suggest.

Scientific journalism is obsessed by the idea of breakthroughs. In fact it is a far more useful role to play in drawing people's attention to areas of science and technology where exciting things are happening, particularly when these have implications for society at large. For journalism of this kind a sense of timing is vital. It needs to appear when people are vaguely aware that something is happening but do not know quite what; and this is often the time when important political and economic decisions need to be taken. Casement had this sense of timing;

and could with advantage have been addressed in a chapter picking up the main questions which British science policy currently faces. Gummert does make a noble attempt to persuade the defence establishment that an annual report on defence research and development would be good for it as well as an important contribution to public accountability. Readers will no doubt emerge from this chapter with a clear sense of the twin pincers in which British defence research and development (which further economic decline worsens) and increased product sophistication pushing up costs and thus reducing the numbers of any given item which can be purchased.

F. J. P. Clarke's article on energy research and development is to me, my critical faculty is obviously disarmed. Suffice it to say then that Clarke's treatment is a most useful one which loses nothing in fairness from the fact that the author is director of management studies with the United Kingdom Atomic Energy Authority.

In their examination of the health field, Professor George Teeling-Smith and David Taylor, director and deputy director of the Office of Health Economics, have chosen to concentrate on health services research rather than medicine. Here again doubts might arise about balance (Professor Teeling-Smith is a governor of the BUPA Medical Research and Development Company). However, although the chapter concludes that there is a place for private funding in health services research, this is a position that might have been reached from a variety of starting positions and the authors fully recognize the strengths of the National Health Service (NHS) not least that the services it offers are "among the most cost effective in the world". The authors also make the very valid point that the real customers for health services research

are neither health service administrators nor civil servants but rather the public. With this in mind they would like consumer sovereignty in the NHS strengthened.

Given what they have been through in the past three years, readers might be least in need of Clive Booth's chapter on higher education and research training. Too close a reading of this could easily amount to masochism. In his inventory of imbalances caused by cuts and the system's lack of adaptability, Booth is another concerned about the need to protect basic research, but he seems distinctly uneasy about academics developing their talents as consultants and entrepreneurs.

To Professor Albert Chermis falls the almost impossible task of discussing policy as regards social science research, and in recognition of this the title of his chapter is the only one to have a question mark after it. He has so many awkward dimensions to encompass - boundary questions, methodological, interdisciplinary, academic and mission oriented research, the influence of ideology on the researcher, the political sensitivity of his results, and so on. Chermis feels he has devoted too much attention to the "dissatisfaction and mutual disenchantment and misunderstanding" which have followed attempts to apply social science research directly, especially since in his view his examples are exceptional. As regards what he refers to as the "levelling off" of recent years, though he acknowledges that cuts have been "deep and often indiscriminate", he still manages to take a long and relatively optimistic view.

Current problems in transport research are set out clearly by Alec Silverleaf. Here again the role of the public sector emerges as crucial. The illogical and inconsistent pattern of funding across the various parts of the transport field is underlined and the growth of budgetary constraints once

more provides a menacing backdrop. It is not readily apparent that the conclusions one is supposed to draw from the two comparative chapters, Kellermann's writing of France and there need be no doubt that it is French case planning applied to science, technology and industry to achieve the aims of government, or the expectations of politicians, scientists, engineers and whole industries "desperate for new technology" "seeing the bite of French proceeds" to share a "feeling of wonder", but knows that this is quite different from Britain being willing, or able, to do the French example. Michael Peel describes a "low coordination" and speculates as to whether it is a coordination and interdependence. He must know, for he is the title is firmly against it. In any case, Britain tends to be elsewhere such international examples as it is cures to follow.

So where does all this leave us a Britain? By international comparison no doubt in substantially poorer shape than we used to be and certainly no doubt in a long decline, but to quality and quantity of the British research effort is rarely among the top of the list. The one advantage of the country organizes itself to derive from it are very different matters. The nine snapshots of British science policy offered in this book, with all the problems they reveal, still contain plenty of information, which was more than Bismarck felt able to say of the three emperors whose nakedness he had observed.

Roger Williams

Roger Williams is professor of government and science and technology policy at the University of Manchester.

with detailed descriptions of each of the other: names, range, habitat and size, followed by a short and readable account of a few of the features. These vary in their usefulness, words such as "attractive", "newsworthy" and "notorious" being interspersed with more solid information on longevity, life style and size. The pictures, by several different artists, are also of varied quality (though I sympathize with their effort to portray such a wide variety of species, many of which they can never have seen). Of the fish, some were excellent; in others, colours proved especially problematic. Many of the mammals appear somewhat emaciated; in the birds, foot and beak are sometimes gone awry. Only the reptiles and amphibians (groups I know least) did I feel the results truly excellent.

In its portrayal and description of each species, the book deserves qualified approval. As far as its general plan is concerned I am at more of a loss, for I am not clear who is likely to find it useful. Certainly it includes those species that readers are most likely to encounter in a natural history film: wolves and wombats, pandas, piranhas, mole rats and megaloptera. But it is less than exhaustive; and the descriptions are of individual species, it is difficult to track down the nearest relative of one that catches the interest but is not described. Starting with the English names of eight tropical fish I drew a blank on five, found a close relative of a sixth and accounts of the other two.

A handsome book, then, but one which covers too broad a range to be superficially and patchily to have much use as a work of reference. Its role may be more in school and college libraries where it will be a joy to browse through for budding naturalists and a help to teachers keen to illustrate the diversity and basic features of vertebrate groups.

P.J.B. Slater

P.J.B. Slater is lecturer in biological sciences at the University of Sussex. He takes up the post of professor of natural history at the University of St Andrews on July 1st, 1984.

The 1984 *Directory of British Biotechnology*, published by Catermill Publishing for the Biotechnology Unit of the Department of Trade and Industry, is available from P.O. Box 33, St Andrews, Fife, KY16 9EA, price £45.50.



South African crowned crane. From Paul A. Johnsgard's *Cranes of the World*, published by Croom Helm at £25.00.

His article on the silicon chip in 1977, and on biotechnology in the following year, helped to put both on the political map. A year or two earlier, or later, and neither would have had the same impact.

Casement was also good on the sociology of science. The book includes a sharp piece on management styles at the Cavendish Laboratory and a lengthy study of innovation in Japan. Why, when they are so good at development do they come up with so few really original ideas? Casement thought the tradition of cultural imperialism had a lot to do with it. A party of westerners in a restaurant, he points out, all try to order different things; a party of Japanese try to order the same things. Although there may or may not be a connection between restaurant habits and Nobel prizes, it is an intriguing idea.

Pieces like these stand up well to being reprinted several years after they first appeared. Others, like one on Darwin, seem less resilient. The book does show, however, that the high reputation Casement acquired in the last years of his life was thoroughly deserved.

Bryan Silcock

Bryan Silcock is science correspondent of *The Sunday Times*.

Animal magic

Longman Illustrated Animal Encyclopedia
edited by Philip Whitfield
Longman, £25.00
ISBN 0 582 55691 0

There is a standing joke among zoologists that the layman, in his ignorance, splits our world into birds, animals and things. It is a little more than a century, claims to be a "visual who's who of all the world's creatures", classifies them in yet another way, for there are no creepy-crawlies here at all, as only vertebrate animals have been included. Even so, the task is a daunting one, for at least 40,000 species have been included. The solution adopted by Dr Whitfield and his team has been to limit the book to 2,000, being sure of taking at least one from each family - except in the case of fishes where, because the number of families is so great, they could only go down to the level of the order.

The book is a lavish production. Each pair of pages presents paintings of the species considered on one side,

BOOKS

A history of conflict

Ilesha and Nigerians: the incorporation of a Yoruba Kingdom 1890s-1970s
by J.D. V. Peel
Cambridge University Press, £27.50
ISBN 0 521 22545 0

Given the cultural and historical importance of the Yoruba-speaking people of southwestern Nigeria in Africa as a whole, it is strange that hardly any in-depth accounts of specific Yoruba kingdoms should have been published. In this book Professor Peel sets out to fill this gap, and the result is a study of the Ilesha kingdom and its capital, Ilesha.

The early history of the kingdom was strongly influenced by its powerful neighbours, Oyo and Benin. The Ilesha prospered as trade flowed through the kingdom and as the capital attracted migrants from the surrounding areas. In the nineteenth century after the collapse of Oyo, the Ilesha became embroiled in the wars which raged throughout Yorubaland for much of the century, and which ended in a military stalemate facilitating the takeover of the whole region by the British. The main threat to Ilesha came from the rising power of Ibadan, and Ibadan forces sacked Ilesha in 1880. The Ilesha recovered enough to take a major part in the long Ekitiparag war, but the capital was now a fraction of its former size, and the military leaders were the main power in the kingdom.

The imposition of British rule saw the re-establishment of the power of the chiefs, but other major economic and social changes were now taking place. The introduction of cocoa created new economic opportunities both in the rural areas and in the towns, and Ilesha entrepreneurs moved into transport and trade. Petty traders from



An early photograph of a Hopi family eating a meal of gruel from a painted bowl. From Steven A. Leblanc's *The Mimbres People: Ancient Pueblo painters of the American Southwest* (Thames & Hudson, £18.00).

Across cultures

Social Research in Developing Countries: surveys and censuses in the third world
edited by Martin Bulmer and Donald P. Warwick
Wiley, £19.50
ISBN 0 471 10352 7

Martin Bulmer and Donald Warwick's collection of articles and their linking chapters provide a refreshing change for anyone interested in how to do social research. This is a positive book, squarely lodged in the pragmatism and realism of the 1980s, which accepts that all social research methods have problems and may produce biased results, but that an awareness of potential pitfalls and how they may be overcome, and a sound reading of exemplars, will improve the quality of research. The book emphasizes the importance of collecting good data and reminds us of the extent to which data

Ilesha travelled to the more remote areas of Yorubaland, selling and exchanging goods on credit and doing much to stimulate local-level trade and markets. Christianity spread rapidly along with western education. Their effects reinforced those brought about by the political and economic changes, as increasing levels of social and geographical mobility resulted in the "discovery of Nigeria" by the Ilesha people.

This expansion of social and cultural horizons produced new forms of consciousness and new forms of conflict as the growing numbers of the educated and the wealthy challenged the power of the traditional chiefs in local politics. Their position was made stronger after riots in Ilesha in 1941, while the constitutional changes in the decade preceding Nigerian independence confirmed them in power at the regional and national levels. The establishment of national political parties in the 1950s produced conflict between them at the local level, and after independence in 1960 the conflict grew more intense: the political crisis which erupted in the western region of Nigeria in 1962 triggered off increasing violence in Ilesha itself. The conflict only ceased with the imposition of military rule in 1966. At this point the narrative ends. Peel argues that, in future, Ilesha history will have to be treated increasingly as a local segment of the national experience.

This is a remarkable study, not least for the quantity and variety of the data on which it draws. Professor Peel has been able to draw not only on his own material, but also that of colleagues: research on the smaller towns and villages in the kingdom and on its oral history. The blending of these disparate elements - oral history, king lists, sample survey, interviews with prominent political figures and documentary evidence - is done with great skill, and the result is rich and detailed. It has provided a model for future historical and sociological studies of Yoruba kingdoms, and it has set standards which will be difficult to match.

J. S. Eades

Dr Eades is lecturer in social anthropology at the University of Kent.

Reactions of the exploited

Reluctant Rebels: comparative studies of revolution and underdevelopment
by John Walton
Columbia University Press, \$36.50 and \$10.00
ISBN 0 231 05728 8 and 05729 6

Postwar revolution has been a product almost entirely of the third world and has characteristically formed a local response to external political and economic penetration. A book which seeks to integrate the study of revolution and underdevelopment through a comparative study of third world revolution has therefore a plausible starting point. This one, none the less, fails to get far along the way.

This is partly the result of the case studies, comprising about half of the book, on which John Walton draws to justify his general argument. Not for him the well-beaten path to Cuba and Vietnam. Instead, he chooses three revolts from the late 1940s and 1950s: the Huk rebellion in the Philippines, the *violencia* in Colombia, and Mau Mau in Kenya. He demonstrates convincingly how each usage of violence followed from an exploitative process of incorporation into the world economy, a sharp drop in living standards, and a repressive reaction by dominant groups to attempts at legitimate political organization.

It is when he seeks to integrate these cases into a general theory of revolution that his troubles start. He has, of course, a long way to go. None of them would normally be considered as a revolution, or even as a revolutionary movement. Diffuse in organization, inchoate in goals, and localized in operation, they not only failed to come anywhere near success: they do not even seem to have had much idea as to what "success" would be. They were, more than anything else, the gut reactions of the exploited. Walton's response is to class them as "national

revolts", and to insist that, even if they do not come into the same class as the Cuban or Korean experiences, they should still be analysed within the same frame of reference.

Yet even to call them national revolts is to take a lot for granted. Apart from Mau Mau (itself in many respects an internal Kikuyu conflict as much as an anti-colonial one), they were not in any clear sense directed against foreigners, nor was there any evident concept of the "nation" which they were directed towards. The concept of a "revolutionary" in this approach carries through into the discussion of the consequences of the revolts, which are seen as having been in varying degrees successful, with results approximating in some instances to those of "classical" revolutions such as Mexico or Cuba. Students of Kenya will read with incredulity that Mau Mau was the most successful of the three, and that Kenyan independence was a "revolutionary victory".

This surprising conclusion is in part produced by fudging the historical record. Walton is simply not justified in claiming that "without the revolt the Rhodesian 'model' could have been Kenya's fate", while in referring to "the doctrine that 'white interests must be paramount'", he precisely reverses the colonial government's declaration as early as 1923 that "the interests of the African natives must be paramount". But more important is a

failure to give any serious attention to what distinguishes revolutions from other forms of violent opposition. Neither the case studies nor the general discussion have anything to say either about ideology (whether nationalist or socialist) or about leadership and organization. It may well be, though the case still needs to be made, that in Kenya, Colombia and the Philippines there were "revolutionary situations" which for one reason or another got no further; yet it is equally plausible to conclude that the revolts of the exploited can quite easily be contained by a mixture of local repression with political concessions to indigenous elites.

This book has attractive features, not least its author's open-mindedness, his awareness of variation and change within third world societies, his readiness to assert that "revolution is as much an instrument of those who would preserve inequality as of those who would create a more just society". Equally refreshing is his insistence, in contrast to present fashions, that urban and rural politics spring from the same roots and must be analysed together. But in terms of its own stated goals, it seems to me to be a failure.

Christopher Clapham

Christopher Clapham is senior lecturer in politics at the University of Lancaster.

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BOOKS

ENGINEERING

High tech

Industrial Design in Engineering: a marriage of techniques
edited by Charles H. Flurschheim
Design Council: Springer, DM118.00
ISBN 3 540 12627 9

One of the great heritages of the Renaissance was the realization that useful objects could also be artistic and beautiful in form and decoration. We have only to look at examples such as early scientific instruments, clocks, hand-tools, suits of armour, and weapons to see this unity of concept and fabrication. It is significant that the first major publication to gather together and codify knowledge and skills, the *Cyclopaedia* by Chambers in 1727, was subtitled *Universal Dictionary of Arts and Sciences, in the several arts, both liberal and mechanical, and the several sciences, human and divine*. Over a century later, when Britain was becoming the workshop of the world, Tomlinson published his *Cyclopaedia of Useful Arts and Manufactures* in 1854, dedicating it to Edward Cowper, professor of manufacturing art and machinery at Kings College, London. So up to the Great Exhibition we had a strong tradition of scientific knowledge, with "useful arts" inseparable in the design and manufacture of household objects, machinery and transport.

In this century, however, and increasingly from the 1930s onwards, engineering design became more analytical and mathematical, and involved advancing technology: engineering designers consequently became much more concerned with function, performance, efficiency, inventiveness and reliability, and less and less with the artistic or human aspects of the products coming from the factories. Under the influence of the Bauhaus and modern art a new form of designer emerged, trained either as architects, or in the fine arts or design in the art colleges, with the confusing title of "industrial designer". Professionally, engineering designers would be members of the appropriate engineering institutions, whereas industrial designers in Britain belonged to the Society of Industrial Artists and Designers.

Mutual suspicion grew: the highly analytical or mechanically ingenious engineering designer, exploiting the latest advances in technology, regarded the industrial designer merely as a stylist, brought in at the last stages of design to wrap a more attractive "envelope" round his complex engineering product to help to sell it. The industrial designer on the other hand was much more concerned about the user or operator of the product, so his starting-point was to establish an accurate assessment of the marketplace and the customers' needs and

requirements and then utilize all the techniques and materials which would lead to a competitive product. He often found that even when an enlightened engineering manufacturer called him in to advise, it was usually so late that engineering design of the product was already at such an advanced stage that, although it might operate satisfactorily as a machine, it could not be made attractive, and safe and pleasant to use by the operator or customer.

The original government agency to improve the awareness of industrial design after the war was the Council of Industrial Design, which with its approved "kite" label presented an image that it was interested mainly in high quality consumer goods designed by leading industrial designers. As the realization of the weaknesses of much British design of heavy capital and engineering products spread, the council was renamed simply the Design Council and its work extended to cover the whole range of designed and manufactured goods (the first and present chairmen have both been distinguished engineers, heading large engineering manufacturing groups).

The Design Council, immediately recognizing the increasing and dangerous gap between engineering and industrial designers, has made strenuous efforts to bring them together with its various awards schemes, exhibitions and publications. This latest contribution, jointly published with a highly regarded technical publisher, indicates that the gap between the two forms of designers is of international concern and is no longer confined to Britain. It is the first major attempt to describe the activities, skills and outlooks of industrial designers, presented by those who practice in the field of engineering products.

The editor, and author of some sections, Charles Flurschheim, has had a long career in engineering, as director and chief engineer of Metropolitan-Vickers and finally as director of engineering on the main board of AET. His lifetime concern to integrate industrial and engineering design has led to his membership of Councils of the Institution of Electrical Engineers, the Royal College of Art, and committees of the Design Council. The objectives he set his contributors were to describe the critical interface problems, and the techniques and procedures used to solve these, aiming to encourage a "marriage" of industrial design and engineering into a single organizational framework within which all types of design can flourish.

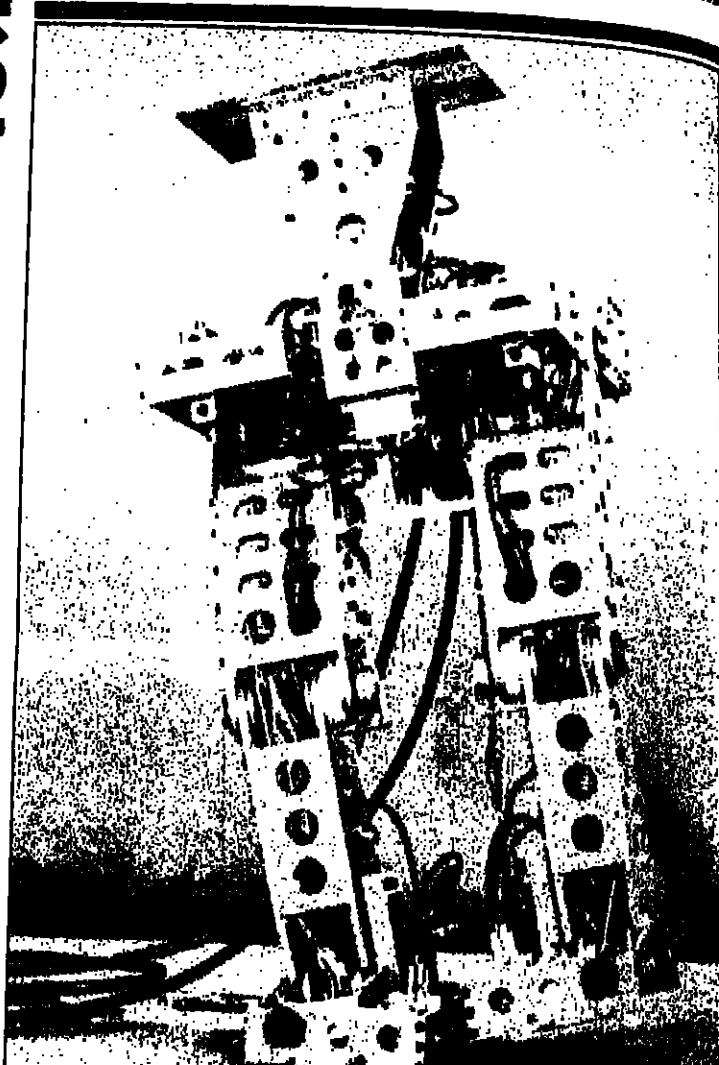
This is a most worthwhile and ambitious target, especially with two such disparate professional groups. To achieve a cohesive presentation is not made easier when 17 contributors, each with distinctive outlooks, are involved. However, the editor accepts

these "discontinuities" as a small price to pay for the authority of the practitioners he has persuaded to contribute. Some insight into the range of activities of industrial designers can be gained from the major topic headings: ergonomics; form; colour; graphics; selection of materials; selection of finishes; maintenance; psychological factors; control components; safety models; aids; standardization of quality; and specifications. A final section on integration is illustrated by descriptions of 22 products, many of which won Design Council awards, but many, surprisingly, dating from the late 1960s and early 1970s. Indeed, it is perhaps indicative of the rate of advance of industrial design that many of those products already have a dated appearance, although functionally they are still well-designed products.

Will this book have the desired impact on the sceptical experienced engineering designer, who needs to be convinced that he should work with the industrial designer as his partner right from the inception of the design? Although the degree of domination of each will of course depend on the nature of the product, the engineering designer must abandon his view that the industrial designer is someone who can be brought in, if needed, during the later stages, to solve problems which more than likely would not have arisen in the first place, if users' needs and tastes have been kept to the fore from the concept stage.

The first major problem faced by this book is that engineering designers tend to think analytically and numerically, and are wary of long-winded descriptive passages with subjective statements about, for example, surface finishes, with only vague comparisons of costs. Although much of the information given is necessarily factual, it does tend to be quotations from well-known textbooks, which any good engineering designer would have as a standard reference book. For example, E.J. McCormick's *Human Factors Engineering*. Certainly, any well-established engineering design degree course would make all this anthropometric information available as data sheets. Another example is the section on hazards and safety: designing to avoid accidents or injury is a requisite for all designers, be they engineers or industrial designers. It would be alarming, therefore, if engineering designers became aware of their responsibilities only from reading this new textbook. Indeed, I had hoped that there would have been much more exposition of how the industrial designer would tackle the very challenging problem of designing machine layout and guards, for example, which would be so well covered in the book.

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Two-legged computer-controlled walking machine (Wabot). From M.W. Thring's *Robots and Telechairs*.

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BOOKS

ENGINEERING

Hands at a distance

Robots and Telechairs: manipulators with memory; remote manipulators; machine limbs for the handicapped
by M.W. Thring
Ellis Horwood: Wiley,
227.50 and £12.50
ISBN 0 85312 274 1 and 651 8

The recent spectacular advances in computing and microelectronics have made industrial robots cost effective in a wide range of factory applications. At present their greatest use is in hazardous environments where they replace low-skilled operators. Typical examples are spot-welding and spray painting. The potential for the industrial robot, however, goes far beyond present levels. There is huge scope for robotic assembly, inspection and a host of other tasks which have traditionally required human skills of manual and mental dexterity. Developments in sensory technology (for example, vision systems, ultrasonics, and touch and proximity sensors) open up whole new fields of application. These applications are not confined to factories: there are obvious uses for

robotic devices in security work, farming, offices and hospitals. A large number of university and polytechnic research groups currently contribute to the SERC robotics initiative which emphasizes the need for close collaboration between the academics and an industrial partner. Much of the research relates to sensor interfaces with robots. Similarly, robotics is one of the most common areas of university/industry activity in the SERC/DTI teaching company scheme. On the teaching side, new MSc courses emphasizing robotics are proving popular, and there are some indications that undergraduate course options in robotics are being successfully developed, a good example being at the University of Hull.

There is, therefore, a clear need for a wide range of texts, both general and specialist. In this most useful addition to the literature Professor Thring, one of Britain's most respected engineering academics, has had to accept that he cannot offer a truly comprehensive treatment. The field is simply too broad. The design of robotic devices involves many branches of engineering - mechanical, electrical, control, software, among others. Their development draws on aspects of psychology and artificial intelligence, and their application has very significant social and philosophical implications. Readers of Thring's earlier work *How to Invent* (Macmillan, 1977) will not be surprised to learn that he tackles these wide-ranging topics with enthusiasm.

The book lays special emphasis on telechairs ("hands at a distance") and some of the strongest sections of the book deal with telechairs machines for work in space, mining and undersea applications. Not surprisingly, Thring's chapter on walking machines is also very convincingly presented. His analyses of six-legged and eight-

section on data processing is included. Part two (198 pages), on the analysis of measured hydro-meteorological data, presents in a refreshingly straightforward way both the practical and conceptual bases of methods relevant to present-day hydrological design, omitting most of the classical methods of the pre-computer era. With its good practical examples and clear illustrations, the presentation is particularly comprehensive when dealing with precipitation analysis (evaporation calculations, river flow analysis and rainfall-runoff relationships) but stops short of a comprehensive coverage of computer-based modelling of deterministic and stochastic hydrology. Civil engineering practice, in all aspects of analysis including hydrology, is presented in a second section. Although Shaw's text contains a considerable practical value, in this context, the discussion of computer-aided design methods is inadequate.

The examples of routine civil engineering applications presented in part three (122 pages) - such as flood routing, design flood calculations, urban hydrology, water resources, and river basin management - are taken almost exclusively from British practice, each problem being discussed initially in the form of a step-by-step solution. As the problems become more complex, the presentation tends to become more descriptive and less

numerical. One notable exception, however, is the presentation in summary form of the British Flood Studies Report - a very useful addition to a new hydrology textbook.

Written for civil engineering undergraduates and postgraduates and for junior engineers working as consultants or in water authorities design, Shaw's book meets the needs of this wide range of readers and improves on existing texts by including practical information relevant to modern hydrological methods. The emphasis on measurement methods is important, as the procurement of representative hydro-meteorological data both in Britain and overseas remains the dominant constraint on accurate hydrological design.

As overseas students form an increasingly significant percentage of those participating in undergraduate and postgraduate courses in hydrology at British universities and colleges, the inclusion of examples drawn from international experience will be a great help. In addition, lecturers and tutors will appreciate the 22 pages of problems with appropriate numerical answers.

George Fleming
George Fleming is reader in civil engineering at the University of Strathclyde.

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because by outlook and training they remain concerned about the "art" as well as the "science" and are good at human relations - whereas engineering designers may base their specifications on their own reactions and judgment. Engineering designers would therefore have learnt much from accounts by industrial designers of the evolution of a successful product, from the gleam-in-the-eye, or original, sketch through sketch, model and model stages, dialogue with customer and manufacturer, to final product and launch on to the market - a process that would have been much more revealing than the "case-study" descriptions of finished products, which are devoid of the human endeavour which went into their realization.

Books can often take many years to produce, and the technology moves ahead so fast that it overtakes events. Nevertheless, it is strange to find only a few paragraphs devoted to a brief mention of the simplest form of computer-aided design, considering that solid modelling with colour shading from palettes of over 4000 colours - which will have a revolutionary effect on bringing together engineering and

industrial design - are already in use. In such a controversial field, however, it is easy to criticize and suggest all for separate books. The commendable fact still remains that the editor, contributor and publisher of this book have identified a major problem area for Britain as a manufacturing nation.

Engineering designers who have little or no contact with industrial designers will obtain from the topics covered a much better appreciation of the wide range of skills, abilities and techniques beyond engineering analysis and design which must contribute to competitive engineering products. If this book only provokes the start of a dialogue between the two branches and leads to much more mutual respect and partnership in working to re-establish the reputation of British goods as being "well-designed", it will have made an important contribution to our future industrial prosperity.

Joseph Black
Professor Black is head of the design group and head of the school of engineering at the University of Bath, a former member of the Design Council (1975-1982).

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logged machines are fascinating. Perhaps the least satisfactory section, however, is the single, 50-page chapter on the current state of theory and practice of robotics, which reviews developments in industrial robotics and analyses possible future uses in unmanned factories and farms and in the home. Many of the references are already rather old and present a somewhat dated view of the fast-moving research into sensor technology and computer-aided manufacture.

The book is particularly strong in those aspects of robotics which rely heavily on the principles of mechanical engineering. The chapter on mechanical arms and hands, for instance, is of special relevance to those interested in biomechanics and engineering design.

The book concludes with a highly readable chapter on the use of robots and telechairs in a future world which Thring somewhat hopefully labels "the creative society". Taking a characteristically robust view of conventional economics and the relationship between unemployment and the use of raw materials, this chapter would make interesting reading for social science teachers and students who strive to understand the relationships between technology and society. It is a distinctively different view of how technology could and should advance the quality of life for all of the world's population.

This highly enjoyable book deserves a wide readership, including researchers, teachers and students at all levels.

Tom Husband
Tom Husband is professor of engineering manufacture, director of the robotics centre, and head of the department of mechanical engineering at Imperial College, London.

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ANNOUNCING A MAJOR NEW JOURNAL FROM PERGAMON PRESS

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Editor-in-Chief: Professor M.S. WALD, Fachhochschule Hamburg, Fachbereich Maschinenbau und Chemieingenieurwesen, Berliner Tor 21, 2000 Hamburg 1, Federal Republic of Germany

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BOOKS

ENGINEERING

Modern motors

Elementary Electric Power and Machines

by P. G. McLaren

Ellis Horwood, Wiley.

£25.00 and £9.50

ISBN 0 85312 269 5 and 715 8

Electric machines technology is well into maturity, and few radical changes are in prospect. Only a handful of experts are now needed in the design and production of motors and generators, but at the same time more and more people are becoming involved with applications.

There are two reasons for the new impetus in motor applications. First, advances in information technology have created a demand for motors to provide "muscle" in such diverse areas as automated manufacture, robotics, business machinery and domestic appliances. And second, the huge market for run-of-the-mill industrial motors has been broadened by the advent of power-electronic controllers, which permit efficient and precise control of torque and speed.

The many engineers now forced into contact with motors are seldom experts. Most are graduates in mechanical, production or software engineering, or have gravitated into engineering from a pure science background.

What little knowledge of electrical power and machines they retain originates from the compulsory "electrical" part of their student course – never very popular with non-electrical students, who regard electricity as something of a mystery and do their best to avoid it. And even among the recent flood of electronics graduates it is rare to find one who has studied any machines and power. Such "heavy current" options have been elbowed out of many courses by the burgeoning of "light-current" electronics topics.

This new text is targeted squarely on the needs of the non-expert user. The author reckons that "good engineers wish to understand the basic mode of operation of any device they need to use" and sets out to provide the non-expert with a working knowledge of the most important types of electrical machines and transformers.

Newcomers will doubtless be encouraged by the prominence given to the word "elementary" in the title; and they will probably be happy with the author's judgment of where to build from. Broadly the reader is presumed to be familiar with basic direct current circuit theory, the laws of Ampere and Faraday, and the expression for force on a conductor – material covered in most Advanced level syllabuses. This inevitably leaves a lot of groundwork to be covered before headway can be made with the machines themselves. All the necessary extra circuit theory and electromagnetism is compressed into the first two chapters, which makes it heavy going for the faint-hearted. Alternating current circuits, real and apparent power, polyphase systems, magnetic circuits, torque production and the rotating magnetic field are all covered competently, but at a pace which might leave many readers reeling.

There is little in this introductory material by way of excitement or what comes later. The rotating magnetic field, for example, is presented as a deadpan, take it or leave it fashion, and is surely supremely elegant, immensely important in practice, and particularly to excite even a sceptic, if not a little presented.

The next five chapters deal in a rather more lively but still necessarily condensed way with the steady-state behaviour of transformers, synchronous machines, and induction or direct current motors. The importance of flux-current interaction is emphasized throughout, and successfully enhances understanding and reinforces the unity between different machine types, a point which is often obscured by piecemeal approaches. The chapter on machine windings – the how and why of the seemingly bewildering array of coil inside the machine – is perhaps the most appealing. It goes a long way to debunking the mystique of the winding arrangements, and also gives a full explanation of the function of the commutator, another frequent stumbling block.

Concluding chapters provide brief introductions to reluctance and synchronous motors, superconducting machines, and power electronics. Keen students have good pointers to further reading; they will certainly find more on power electronics essential if they want to get the best out of modern motors.

Austin Hughes

Austin Hughes is senior lecturer in the department of electrical and electronic engineering at the University of Leeds.

Works of art

The Tower and the Bridge: the new art of structural engineering by David P. Billington
Harper & Row, £21.25
ISBN 0 0465 0867 2

Interest in design among the entire engineering fraternity in universities and polytechnics was reawakened by the Finniston report. Now, the recent report of the SERC's working party on engineering design also urges the inclusion of a substantial design element within undergraduate curricula and also seeks to promote research in this area. In civil engineering, however, during a period when the design content of many other engineering courses had diminished, or even vanished, to make way for more mathematical approaches.

Such events have stimulated the curiosity of civil engineers in the philosophy and evolution of structural design. In his book, written and carefully researched by David Billington, professor of civil engineering at MIT, clearly traces the development of design and construction of major civil engineering structures in its two main phases – first prior to the birth of steel and concrete and then in the subsequent period. The tower and the bridge of the title are certainly Eiffel's Tower (1889) and, less obviously, John Roebling's Brooklyn Bridge (1883). However, Billington's admiration of the work of Robert Maillart (already declared in his 1979 book *Robert Maillart's Bridges*) guarantees a substantial niche for the Swiss engineer within these pages. Beginning with examples of notable and artistic structures like the iron bridges of Thomas Telford in the mid-nineteenth century, Billington examines the strengths and weaknesses of the major contributions to structural art – up to contemporary engineers such as Christian Menn, designer of the magnificent 1980 Ganter Bridge in Switzerland.

In his introduction, Billington states unequivocally that his book seeks to demonstrate that "the most beautiful works of structural art are primarily those created by engineers trained in engineering and not in architecture." He even suggests that these structures might have been compromised had they been designed by architects. With examples of bridges and buildings, he emphasizes that



John A. Roebling's Cincinnati Bridge, spanning the Ohio River – the prototype for his Brooklyn Bridge design. When completed in 1866, this 1057-foot span, iron-wire, cable suspension structure was the largest-spanning bridge in the world. From David Billington's *The Tower and the Bridge*.

engineers have made conscious and aesthetic choices to arrive at final designs and have not hesitated to depart from the strict scientific and social criteria of efficiency and economy. However, this book is not an attack on the architectural profession; as Billington points out, the work of the engineers whose projects are described has been praised by architects and architectural critics – often before it received due recognition from the engineering profession. The author is merely re-stating the old truth that good engineering is a combination of art and technology.

From a British viewpoint, Billington has been scrupulously fair in his selection of engineers and structures in the nineteenth century, achieving a balanced international objectivity for that period. However, when discussing more recent times, he has little to say about the works of British designers, and in general the coverage of twentieth-century structural art is the weakest part of the book. Discussion of large steel bridges ceases at 1939, and although there is a chapter devoted to Eugene Freyssinet and the development of prestressed concrete, the tone here is slightly patronizing. The book is a slightly disappointing work of art in its own right, confined to descriptions of the work of

A. R. Cusens

A. R. Cusens is professor of civil engineering at the University of Leeds.

BOOKS

ENGINEERING

Chemical laws

Chemical and Process Thermodynamics

by B. G. Kyle

Prentice-Hall, £36.05

ISBN 0 13 128637 4

Theory and Practice in Engineering Thermodynamics

by Peter Polak

Macmillan, £14.00 and £5.95

ISBN 0 333 53372 2 and 35387 0

Examination of the library shelves soon reveals a large number of books on thermodynamics, and there is a steady output of new titles to add to the stock. The subject is a wide one and is a central component of many sciences and branches of engineering and technology. Although it might be possible to produce a text that would be useful to many such branches at the same time, their different interests and practices have led to different approaches, and even terminology, so that such a global text is not an attractive proposition for any author.

Moreover, thermodynamics is a subject that most students find very hard to grasp, so the same topics have to be treated several times over for audiences with successively deeper understanding. Finally, and perhaps irreverently, teachers of the subject may have spent years acquiring their command of the subject and may experience an irrepressible urge to reveal all with a new and blinding clarity.

These two books demonstrate this wide range of approach. Kyle's book (more than 500 pages) is directed in the first instance at undergraduate chemical engineers, although he also has postgraduate instruction in mind. Polak's book (only 120 pages) concentrates on topics of interest primarily to mechanical engineers and does not claim to go beyond the second year of a "diploma or degree" course.

Professor Kyle, of Kansas State University, says that twenty years of teaching the subject have developed in him a love for the subject, the excitement and power of which he wishes to convey to others. I find his approach and style agreeable – not surprisingly as both of us have been instructed by K. G. Denbigh's *Principles of Chemical Equilibrium*. The author develops the subject with clarity; it is not easy to be both precise and intelligible to the student of thermodynamics.

The book covers all the usual subjects of a chemical engineering thermodynamics course and provides guidance on what sections are really appropriate for a postgraduate course. The thermodynamic functions and the relations between them are clearly described, as are their application to the behaviour of fluids (both pure, and mixtures). Phase equilibrium effects and heat effects (such as heat of mixing) are treated in full. Liquid-phase non-idealities are examined using different approaches, up to a brief introduction to UNIFAC. And equilibrium in reacting systems is clearly treated, for both homogeneous

and heterogeneous cases.

The book ends with two chapters on engineering thermodynamics (that is, power generation and refrigeration) and compressible fluid flow. Although these are not married particularly well with earlier chapters, they do round off the subject as it is usually taught to chemical engineering undergraduates.

All of us who teach thermodynamics are in a sense derivative. Anything we say was probably said by J. Willard Gibbs, but do we say it in a way intelligible to students? Students must acquire the ability to "get started" on thermodynamic problems that can often seem frustratingly simple when explained. Professor Kyle's worthwhile book, both in terms of its text and its examples, can safely be recommended.

The same cannot be said of the second book. Aiming to provide an introductory guide to (mechanical) engineers, Polak concentrates almost entirely on those subjects dealt with in the last two chapters of Professor Kyle's book. However, the short chapter on heat transfer is so short that students will need a further text; and the significant drawback is characteristic of the treatment of other subjects – for example, cooling towers. Although the author's informal style is acceptable as an approach, informality should not be used to defend ambiguity. In thermodynamics, precision of understanding is essential. Sometimes the author is plainly wrong – for example, stating on page one that the Second Law "can be derived from the ideal gas law". He also describes as the Third Law what is generally called the Zeroth Law.

Although the diagrams of machinery may appeal to some students, others more perceptive will have to look elsewhere if they wish to understand what the subject is really about.

J. C. R. Turner

Professor Turner is head of the department of chemical engineering at the University of Exeter.

Fracture problems

Strength and Fracture of Engineering Solids

by D. K. Felbeck and A. G. Atkins

Prentice-Hall, £37.95

ISBN 0 13 851709 6

Although this book was originally written primarily for an American audience, its up-to-date treatment of the properties of materials most appropriate for engineering design requirements would also be relevant to the first two years of most undergraduate engineering courses in Britain. After the presenting sufficient background to provide students with some idea of context, the authors devote the subsequent 18 chapters to descriptions and explanations of material deformation and fracture behaviour, finishing with a presentation of failure analysis methods. The SI system of units is used throughout, worked examples are included in most chapters, and there is an extensive range of problems (without solutions).

In the first three chapters, the authors discuss the mechanical properties of interest for engineering applications, the types of test used for determining those properties being briefly outlined together with a review of the relevant two-dimensional stress analysis required later for discussion of yield criteria. Reference is made to traditional methods of determining tension, compression, impact, creep and fatigue strengths and to processes of forming materials. Classes of materials and materials behaviour are identified for future comparison with structural characteristics.

Structures appropriate to metals, polymers and glasses are then briefly outlined together with a detailed description of crystal structures. Atomic planes and directions are identified in terms of Miller indices and related to dislocation motion; theoretical strengths are calculated and compared with practical strengths; and work hardening and annealing processes are discussed in terms of dislocation interactions and recovery mechanisms. The authors first introduce single-phase interstitial and substitutional solid solutions, followed by phase diagrams for more complex alloys exhibiting partial solid solubility. The authors

Timber design

Timber Engineering:

practical design studies

by E. N. Carmichael

Spon: Chapman & Hall,

£16.75 and £8.50

ISBN 0 419 12690 2 and 12700 3

Although wood was one of the earliest constructional materials, it is only during the past 50 years that advances in the science and technology of wood have established it as an engineering material, now widely used in construction. As it is a renewable resource with favourable energy balances in processing and in use, it should increase in importance. However, if this increase is to be achieved, the subject of timber engineering will require more extensive coverage on degree and sub-degree level courses than it has had in the past. Dr Carmichael has succeeded in producing a sound introduction to timber engineering. In particular, he has been able to relate theoretical solutions to practical applications.

Early chapters, dealing with timber as a material, the effect of physical properties on strength and the methods used for stress grading timber, provide good introductions of these topics. However, no mention is made of the effects of duration of load on timber strength – which might have aided understanding of the use of load duration factors in the worked examples. The section on the statistical treatment of nominal specific gravity is underdeveloped.

Carmichael then covers durability, presents a very useful chapter on the effect of the building regulations on timber design, and provides some guidance on the assessment of loads due to the action of wind. This first part concludes with two excellent chapters on the practicalities of load

assessment generally and on the presentation of calculations. These contain many good practical points and will prove most useful for students.

The next three chapters, containing worked examples of element design, are clearly presented and cover solid and glue laminated beams, ply web box beams, fitted beams, posts, spaced columns and trusses. These are followed by examples of composite elements and shear panels, and finally a section on the sacrificial timber method for fire resistance. Although most topics are covered in reasonable detail, in some cases reference to more advanced texts will be necessary to complete the designs. Also, before introduction to the general stability of structures, and the use of shear walls, might have been useful.

A general introduction to jointing fasteners in common use then follows, including very useful, and detailed, coverage of the design of joints in trussed rafters using integral toothed-plate connectors. The book concludes with a helpful chapter on good timber detailing, clearly drawing on the author's range of practical experience. Finally, a series of case-studies successfully integrates the material in all the preceding chapters.

This book provides a good introductory text on timber engineering and will be valuable to students and graduates with no previous experience of the

subject. However, it does require ready reference to codes of practice, even though many of the current code's tables are reproduced in the text. The addition of a little more data might have made the text more self-sufficient in this respect.

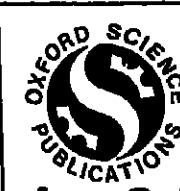
The author introduces approximate methods of analysis in some sections. Although this is perfectly acceptable, students must be aware of the assumptions being made; they will therefore need a sound knowledge of structural mechanics.

As with any book on design, the question of timing is difficult. As the author mentions, with revision of the current British standard code of practice CP112 to produce the new BS5268: part 2 already in hand, a new edition will be necessary sooner rather than later.

B. O. Hilson

B. O. Hilson is reader in civil engineering at Brighton Polytechnic.

A third edition of *Civil Engineering Materials* edited by N. Jackson has been published by Macmillan at £16.00 and £7.95. The sections on metals, timber, concrete, bituminous materials and soils have been revised and new sections on polymer materials and on bricks and blocks have been added.



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- BUILDING

Applications are invited from suitably qualified graduates to teach Building Construction and related Management and Administration subjects to Degree and Higher National Diploma levels.

Practical industrial experience and professional qualifications are desirable as is an interest in computer-based methods.

Salary: £7,215-£13,445 p.a. incl. (Salary award pending w.c. 1.4.84)

Further particulars and application forms are available from:-

The Personnel Officer

The Polytechnic of Wales

PO Box 100

Mild Glamorgan, CF57 1DL

Tel: (0443) 406133 ext. 2021

Closing date: Friday 8 June 1984 (14821)

Further particulars may be obtained from:

The Staffing Officer (Designated)

The Proposed University of Ulster

PO Box 35

Coleraine

Co Londonderry

BT28 1BA

by whom applications should be received by 15 June 1984. (14818)

Further particulars may be obtained from:

The Staffing Officer (Designated)

The Proposed University of Ulster

PO Box 35

Coleraine

Co Londonderry

BT28 1BA

by whom applications should be received by 15 June 1984. (14818)

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Bristol Polytechnic
Department of EducationLECTURER
IN SENIOR
LECTURER IN
PRIMARY
EDUCATION
(JUNIOR)

Ref No L/32

A vacancy has occurred for a lecturer with recent and relevant experience in primary education who can act as a class teacher and contribute to both initial and in-service courses. The person appointed will maintain close liaison with the primary school and will also develop a curriculum specialism.

Further particulars and application forms are available from:-

The Personnel Officer

The Polytechnic of Wales

PO Box 100

Mild Glamorgan, CF57 1DL

Tel: (0443) 406133 ext. 2021

Closing date: Friday 8 June 1984 (14821)

Further particulars may be obtained from:

The Staffing Officer (Designated)

The Proposed University of Ulster

PO Box 35

Coleraine

Co Londonderry

BT28 1BA

by whom applications should be received by 15 June 1984. (14818)

Further particulars may be obtained from:

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Further particulars may be obtained from:

The Staffing Officer (Designated)

Administration continued

University of London London School of Economics ADMINISTRATIVE OFFICERS

Following recent re-organisation the school is seeking to fill two administrative posts offering interesting and varied work and potential to the right candidate for development within university administration.

ADMINISTRATIVE OFFICER: EXTERNAL RELATIONS

This post will be concerned with the promotion of the school's administrative relations outside the university including a variety of entrepreneurial and editorial tasks.

ADMINISTRATIVE OFFICER: CONFERENCES AND FUNCTIONS

This post will be concerned with the promotion of facilities in the school including those of residential or conference and functions and related administrative work in the current areas.

Applications are invited from graduates or those with equivalent qualifications with experience in or interest in university administration.

Salary will be on the Grade 1A senior administrative scale (currently £12,500-£15,000) under London allowance.

Please write for application forms to be returned by 8 June 1984, and further details to the Assistant Personnel Officer, L. S. 2.2, 100 Tottenham Court Road, London W1P 0LP.

Committee of Directors of Polytechnics Polytechnics Central Admissions System (PCAS)

The Committee of Directors of Polytechnics is establishing a Polytechnics Central Admissions System in association with the Universities Council on Admissions (UCCA).

PUBLICATIONS OFFICER

Applications are now invited for Publications Officer to prepare and edit the publication of the Polytechnics Central Admissions System. The post involves a high level of editorial experience and technical knowledge of printing technology. The post is based in Cheltenham, Gloucestershire, and involves a high level of responsibility.

Starting salary not less than £9,000 p.a.

Further information and application forms may be obtained from the Secretary, Committee of Directors of Polytechnics, 200 Regent Street, London W1A 1AB (Tel. 01-537 9936).

Colleges of Art

Medway College of Design Kent County Council Education Department

Applications are invited for the following posts, which are available from 1st September 1984:

LECTURER IN SPATIAL DESIGN

Applicants must be well experienced in interior and exterior design, and have a strong background in design, construction, building, and materials.

LECTURER IN DISPLAY DESIGN

A sound knowledge of display and exhibition design, and lighting is essential.

LECTURER IN COMPLEMENTARY STUDIES

A suitably qualified person is required to teach craft, design, and materials.

LECTURER IN VISUAL STUDIES

Applicants should be experienced in teaching design and visual studies, and have a strong background in design, construction, building, and materials.

EDUCATION DEPARTMENT

MAIDSTONE COLLEGE OF ART APPOINTMENT OF VICE-PRINCIPAL

Applications are invited for the above named post to commence on 1st September 1984 or as soon as possible thereafter. The college provides courses leading to C.N.A.A. B.A. Honours Degrees in Fine Art and Graphic Design and a Foundation course.

Applicants should have extensive teaching and administrative experience at a senior level in addition to possessing management skills of a high order. Salary is at present within group 4, salary range of £15,204-£18,200 on basis of 1983 scales.

Further particulars and application forms (returnable by 11th June 1984) are obtainable from the Clerk to the Governors, Maidstone College of Art, Education Office, Aetley House, Hastings Road, Maidstone, Kent ME15 7SQ. (14708)

KENT COUNTY COUNCIL

DEVON COUNTY COUNCIL Exeter College of Art and Design

PRINCIPAL

The Governors invite applications from suitably qualified persons with experience in Higher Education in Art and Design, for the post of Principal, which will become vacant on 1st January 1985 on the retirement of Clifford Flavell, A.D.

Salary range Group IV - £18,141-£18,288 (under review)

Application forms and details from the Clerk to the Governors, Exeter College of Art and Design, Earl Richards Road North, Exeter, EX2 6AS, to whom completed applications must be received by 15th June, 1984. (14828)

Courses

The Open University MA IN LITERATURE BY PART-TIME EXTERNAL STUDY

Applications are invited for the MA in Literature by part-time external study. This is a two-year part-time course which provides a training in the study of literature as applied to the area of the English language. The course is designed to enable students to study at their own pace and to fit their studies with their other commitments. The course is available to students who have a first degree in any subject, or who have completed the first year of a three-year undergraduate course in any subject.

The course is based on a core of compulsory modules, with a choice of optional modules in the second year. The course is assessed by a combination of written and oral examinations, and by a dissertation.

Applicants should normally have at least an upper second class honours degree with evidence of a strong understanding of literature and language, and a good knowledge of the English language.

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Y Swyddfa Gymreig Welsh Office

Further Education Unit DEVELOPMENT AGENT PICKUP PROGRAMME

As part of the programme of development of the Further Education Unit (FEU) in Wales, the Welsh Office is seeking to appoint a Development Agent to promote and encourage the development of post-secondary vocational education by Universities, Polytechnics and Colleges. Such courses are of many types, often of short duration, at all levels and across the whole range of employment.

Applicants should preferably have experience of both industry and further education, and ideally including the provision of mid-career vocational courses. The ability to work independently, to establish close links with a variety of individuals, organisations and institutions and to communicate effectively orally and in writing are essential.

The post, which will cover the whole of Wales, will be the responsibility of the FEU in Wales. It will involve a high level of responsibility and will require a high level of motivation and initiative.

The appointment will be for a period of two years, with the possibility of extension. The successful applicant will be expected to undertake a period of study leave in the UK, and to undertake a period of study leave in the UK, and to undertake a period of study leave in the UK.

Applicants should send their applications, together with a curriculum vitae, to the Welsh Office, Further Education Unit, 100 Tottenham Court Road, London W1P 0LP. (14708)

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The University of Botswana

The University of Botswana invites applications for the following positions:

1. Documentalist/Research Fellow

Qualifications: BA in a Social Science and Master's degree in Information Science, and familiarity with computer techniques in documentation and information handling.

Duties: Assistant documentalist in charge of documentation, editing working papers, research notes and other information available on request.

Salary scale: P9,684-16,388

2. Senior Research Fellow/Research Fellow in Education Studies

Qualifications: MA, MEd or PhD in Education with postgraduate grounding in Social Science Research Methodology.

Duties: To embark on several research projects in the area of development education.

Salary scale: Senior Research Fellow P15,804-P18,072 Research Fellow P9,684-P16,388

3. Senior Research Fellow/Research Fellow in Health

Qualifications: MA or MSc in Community Health or MPH with a basic degree in one of the Social Sciences, or have an MA degree in Medical Sociology or Anthropology, PhD preferred.

Duties: To conduct a malaria pilot study project in North-Western Botswana. Help establish NIRS research programme in Health-related studies. Salary as in number 3 above.

Salary scale: Senior Research Fellow P15,804-P18,072 Expatriate staff will be entitled to contract addition at 30% of basic salary and gratuity at 25% of basic salary plus contract addition on successful completion of a two-year contract. Fringe benefits include Medical Aid Scheme and Education Allowance for dependant children, reimbursed in full for English Medium Schools. For Secondary Schools and Boarding Schools, the University makes a contribution towards the fees.

Direct all applications to Assistant Registrar (Academic Staffing), University of Botswana, Private Bag 0022, Gaborone, Botswana not later than 28th June, 1984. Please enclose three names of professional referees. (14848)

KENYATTA UNIVERSITY COLLEGE

Applications are invited for the following posts:- PROFESSOR - Educational Psychology Department

Applicants should be holders of Ph.D. or its equivalent in Educational Psychology. They must be Associate Professors or Professors of long experience in University teaching and research in an African University. Extensive research as evidenced by publications in the area of Educational Psychology is also a must for this post. The successful candidate will be required to lecture and develop programmes for B.Ed. M.A. and Ph.D. students in the Department.

SENIOR LECTURER - ZOOLOGY DEPARTMENT

Applicants must have Ph.D. in Zoology plus several years' teaching and research. Evidence of Publications with reputable publishers will be an advantage. Experience in a teacher training institution will be an added advantage. Successful candidate will be expected to teach undergraduate, supervise postgraduate and carry out personal research. Applications will be considered from persons specialising in any area of Zoology. The areas of specialisation already represented in Department are Physiology, Developmental Biology, Entomology, Terrestrial and Applied Ecology, Aquatic Biology, Cytogenetics and Immunology, and Immunology, Mammalogy, Cytogenetics and Immunology.

LECTURER - PHILOSOPHY AND RELIGIOUS STUDIES DEPARTMENT

Applicants should be holders of Ph.D. in some area of Religious Studies such as Biblical Studies, African Tradition of Religion, Islamic etc. Some background in the Comparative relationship between Christianity and other major world religions would be an advantage. Successful applicant will assume responsibility for undergraduate and postgraduate programmes including supervision of Teaching Practice.

Terms of Service include membership of a Senior Staff Superannuation Fund or F.S.S.U., a non-contributory Medical Scheme, subsidised housing or a generous housing allowance.

Salary Scales:
Professor K2400 x K1180 - K2600 per annum
Senior Lecturer K2300 x K1180 - K2400 per annum
Lecturer K2200 x K1180 - K2300 x K1180 - K2300 p.a.

Applications (6 copies) giving full details of age, marital status, educational qualifications, experience, present post, salary and copies of certificates (together with samples of selected publications must also be enclosed) and names and addresses of three academic referees should be addressed to:

The Registrar
Kenya University College
P.O. Box 43844
NAIROBI. (14830)

THE UNIVERSITY OF BOTSWANA

The University invites applications from suitable candidates for SENIOR LECTURESHIP/ LECTURESHIP IN ALGEBRA

and in
TOPOLOGY/ANALYSIS

Qualifications:
Master's degree, but PhD preferred. Duties include teaching Under and Abstract Algebra or Topology and real analysis up to final BSc level. Lectures and tutorials in general Mathematics at first year level.

Salary: Senior Lecturer P14,384-P18,468. Lecturer P8,786-P14,688. Expatriate staff will be entitled to contract addition at 30% of basic salary and gratuity at 25% of basic salary plus contract addition on successful completion of a two-year contract. Fringe benefits include Medical Aid Scheme and Education Allowance which is reimbursed in full for English Medium Schools. For Secondary Schools and Boarding Schools the University makes a contribution towards the fees.

Applicants with names and addresses of three academic referees to reach the Assistant Registrar (Staffing), University of Botswana, Private Bag 0022, Gaborone, Botswana not later than 30 May, 1984. (14848)

Overseas continued

Post Overseas

China

English Language/Media Specialist Central Radio & TV University, Peking

Duties: Teacher training, materials development, making sketches for TV programme.

Qualifications: Candidates must be British citizens with a degree, TEFL qualification and considerable experience of distance teaching and TEFL, including studio experience, script writing and E.L.T.V. programme presentation. Married candidate without children preferred with spouse able to provide part-time assistance.

Salary: Local salary plus annual sterling subsidy £7,562. Beneficial Fares, free accommodation, installation grant, superannuation contribution.

Contract: One year renewable commencing September 1984, guaranteed by the British Council.

Reference: 84 B 777H.

For further details and an application form, please write, quoting the post reference number to:

Overseas Educational Appointments
Department, The British Council, 90-91 Tottenham Court Road, London W1P 0DT.

(14848)

THE UNIVERSITY OF BOTSWANA

The University of Botswana invites applications for the following:

Lecturer in Political Science

Qualifications: At least Master's degree and relevant university teaching experience.

Duties: To teach courses (a) African Politics (b) Southern African Politics

Director - Institute of Adult Education

Qualifications: MA but Ph.D. preferable, about 10 years of approved relevant professional experience in similar position.

Duties: Head institution and overall responsibility for its current operations and future development. More information on request.

Salary Scales: (Professorial)
P18072 - P20892

Expatriate staff will be entitled to contract addition at 30% of basic salary and gratuity at 25% of basic salary plus contract addition on successful completion of a two-year contract.

Fringe benefits include Medical Aid Scheme and Education Allowance which is reimbursed in full for English Medium Schools. For Secondary Schools and Boarding Schools the University makes a contribution towards the fees.

Applicants with names and addresses of three academic referees to reach the Assistant Registrar (Staffing), University of Botswana, Private Bag 0022, Gaborone, Botswana not later than June 29, 1984. (14838)

UNIVERSITY OF CAPE TOWN

Senior Lecturer In Physical Oceanography

Applications are invited for the above post, vacant from 1 July 1984. Candidates should have interests in the broad field of dynamical oceanography, those with interests in oil-sea interaction and/or marine biotechnology being particularly welcome. The successful applicant will be required to take part in undergraduate and postgraduate teaching and to undertake research.

Appointment, according to qualifications and experience will be made on the salary scale R10 000 x R30 000 plus a pensionable allowance of 12% with an annual bonus of nearly one month's salary and attractive staff benefits.

Applicants should submit a full curriculum vitae and the names and addresses of three referees not later than 15 June 1984 to the Registrar, (Assistant: Appointments Office), Department 5/457, University of Cape Town, Private Bag, Rondebosch, 7700, South Africa. Further information may be obtained from the Registrar or the Secretary, SA Universities Office, Chichester House, 278 High Holborn, London WC1V 7JE.

The University's policy is not to discriminate on the grounds of sex, race or religion.

Further information on the implementation of this policy is obtainable on request.

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The Times Higher Education Supplement

Special Book Numbers

June 1 Law
8 Psychology (I)

September 28 Education (II)

October 5 Economics (II)
12 Environmental
Sciences (II)
19 Sociology (II)
26 Mathematics and
Physics (II)

November 2 History (II)
9 Psychology (II)
16 Politics
23 Biological Sciences (II)

December 7 Computer Science

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June 15 Social Sciences
and Humanities

September 21 Sciences

Special Features